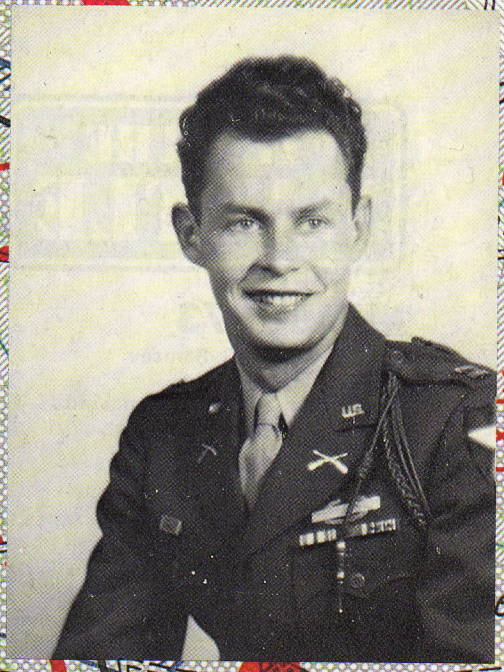
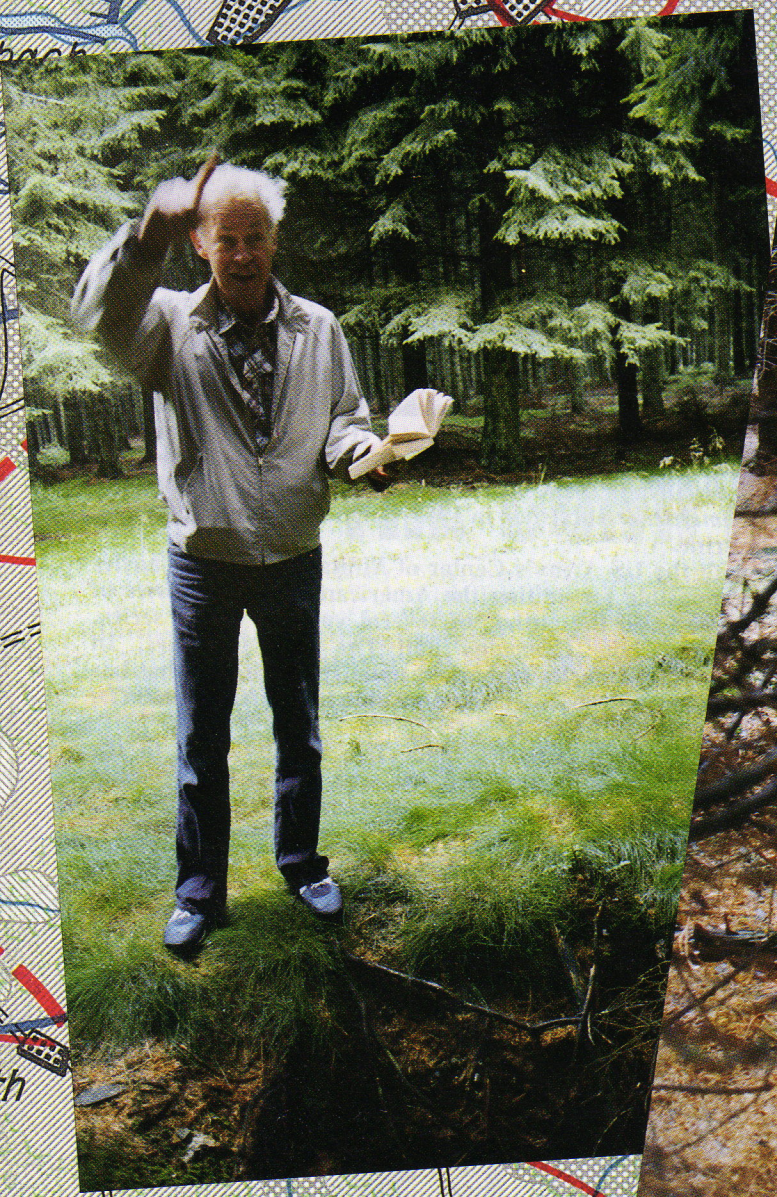
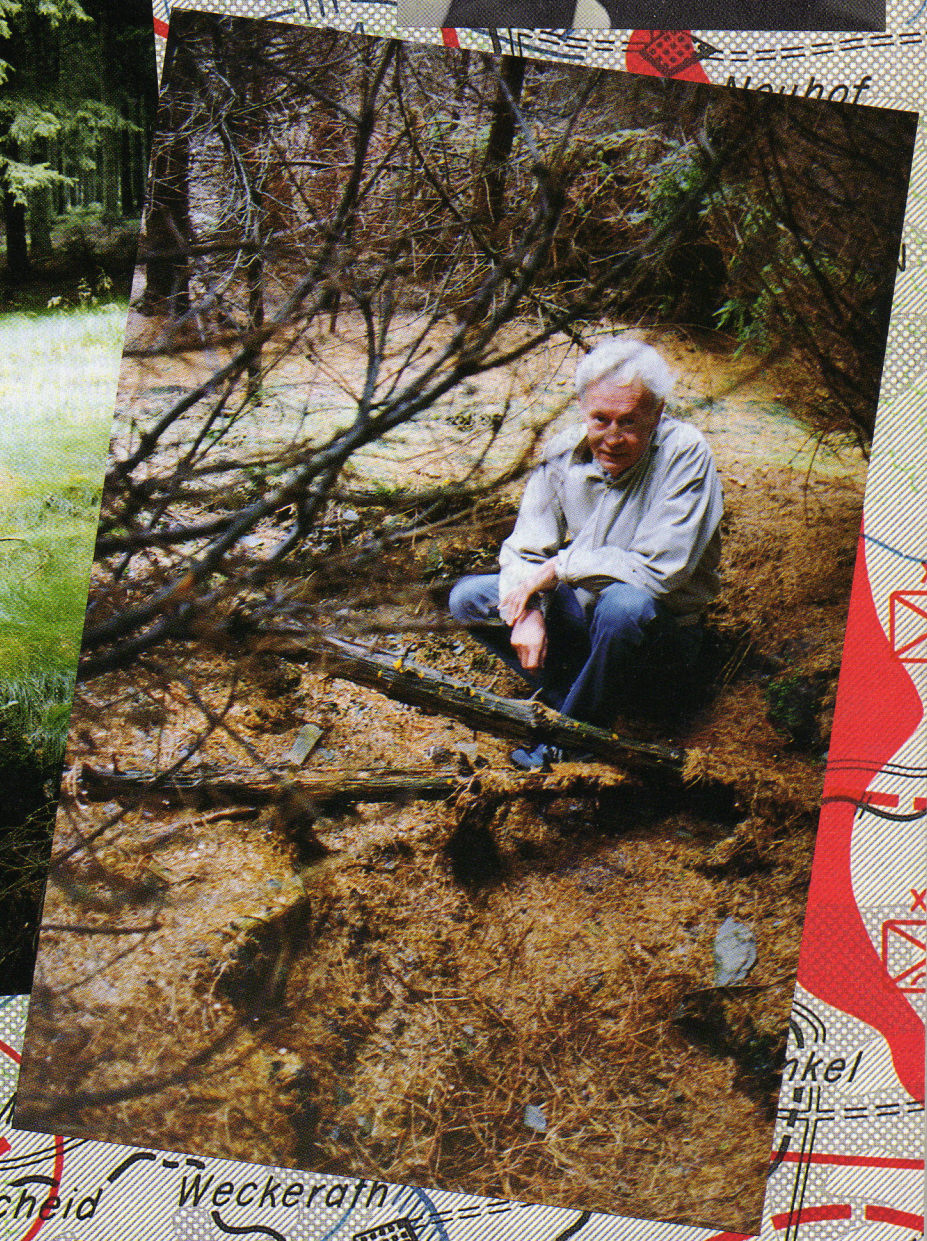
AFTER THE BATTLE







CHARLES B. MACDONALD

CLEARING THE RHINE

Number 73

AFTER THE BATTLE

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Front Cover: With the Company Commander. The late Charles B. MacDonald holds forth in the Krinkelter Wald where he fought a desperate rearguard in December 1944. (Patrick Hargreaves)

Centre Pages: The crumbling brickwork of the railway bridge across the Rhine at Wesel — destroyed in 1945 and never rebuilt. (Karel Margry)

Back Cover: Forty-six years after it first flew liaison missions for the Ninth Army in Britain, Ken Wakefield pilots his Piper Cub back to the very sports field from which it first operated in 1944. (Doug Dyson)

Acknowledgements: The Editor is indebted to the late Charles B. MacDonald for extracts from his 1947 book, *Company Commander.*

Photo Credits: IWM — Imperial War Museum

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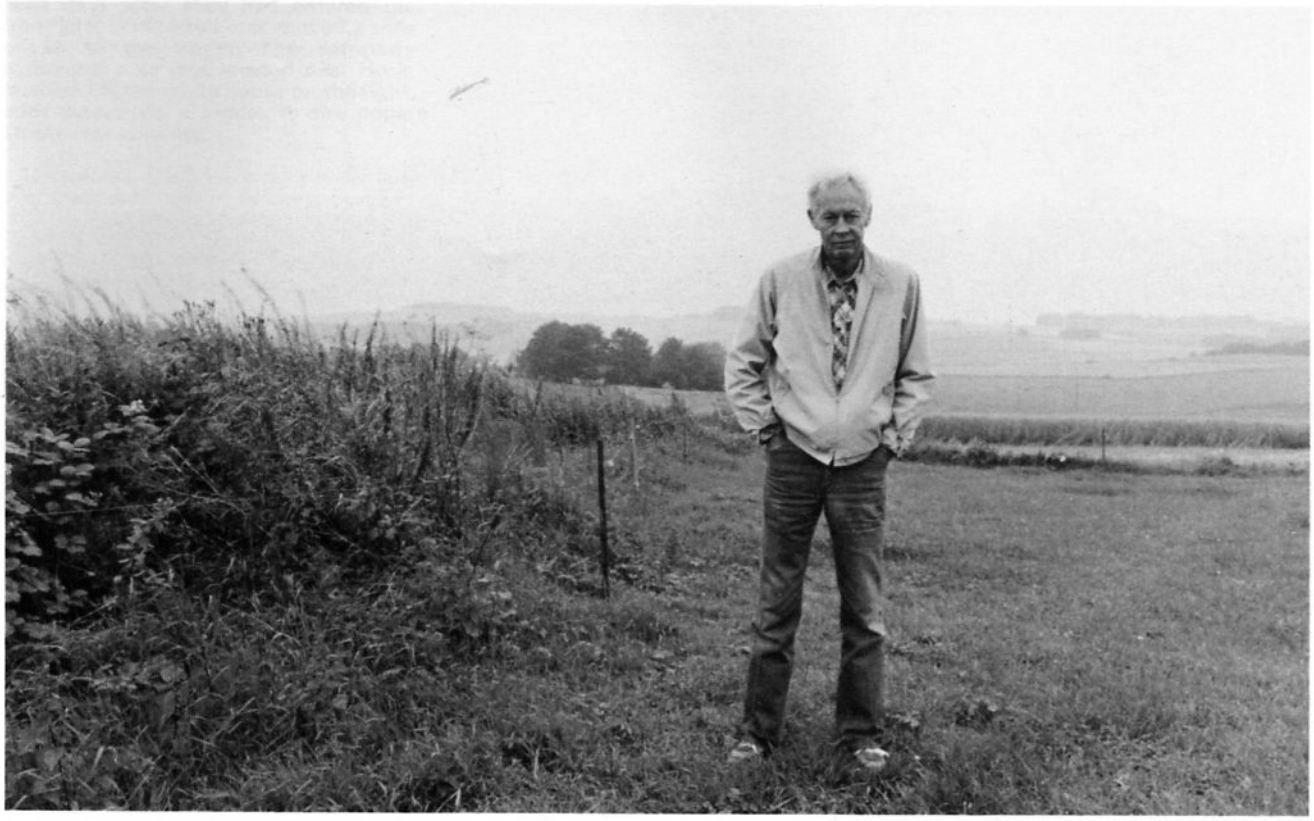
At 11.15 a.m. on the morning of October 3, 1944, Charles B. MacDonald entered Germany. He was twenty-one years old, and a captain in the US Army. He was in command of Company I, 23rd Infantry, 2nd Division, with orders to occupy positions in the Siegfried Line at a point where the Allied advance of the autumn of that year had made its deepest penetration of the German front lines.

Captain MacDonald wrote down the experiences of his first nine days in the line, but this article was never to be published. It was lost when his unit was hit by the massive German counter-offensive in the Ardennes that December. It did not really matter. Charles was to go on to write an infantry classic: *Company Commander* published in 1947 which, through consecutive editions, is still in print.

After the war, with the US Army's Center of Military History, Charles MacDonald was responsible for editing the American official histories of World War II. He was also the author of several volumes in the series, including *The Siegfried Line Campaign* and *The Last Offensive*. In retirement from the Army, Charles embarked upon research for what has become the definitive account of Hitler's last gamble in the Ardennes: *The Battle of the Bulge*, published in 1984.

During five years' research, Charles made five lengthy trips to the Ardennes, during which time he revisited the sites of his own combat experiences. Patrick Hargreaves was with him on some of these visits, and gained a telling insight into those experiences from a remarkable man.

Charles B. MacDonald died in December 1990.



WITH THE COMPANY COMMANDER

By Patrick Hargreaves

He seemed overjoyed at the prospect of leaving, and I wondered if someday I would be just as happy to leave this area. And how long would that someday be? . . . There was no way of knowing . . . I closed my eyes for a brief moment, and murmured a silent prayer. The lieutenant was gone. I was on my own.

Company I, 23rd Infantry, took over defensive positions on the Siegfried Line just inside the German border on Wednesday, October 4, 1944. The company commander, Captain Charles B. MacDonald, was taken forward by guides from the company he was to relieve. The route forward to the positions was very circuitous. The whole area was under observation by the Germans. MacDonald found himself facing the prospect of his first combat assignment at a point where the Allied line projected deepest into enemy-held territory.

The defensive positions which Company I was taking over from the 28th Division were 15 kilometres south of Saint-Vith, Belgium, near the village of Grosskampkenberg. As Charles anxiously waited for his platoons to take over from those they were relieving, the lieutenant in charge of the outgoing company briefed him on their dispositions. The battalion would be deployed in the shape of a giant horseshoe, with I Company in the centre of the arc. The briefing by the lieutenant didn't exactly inspire Charles with confidence . . . 'Been there fifteen days . . . No counter-attacks or patrols hit them yet . . . K Company to the right got the living hell knocked out of them two nights ago . . . Swarm of Kraut infantry along with a flame-throwing half-track . . . Caught men in a pillbox . . . Stampeded the company . . . His own right platoon started to fall back, till he stopped it . . . '

Despite the chilling tale of the flame-throwing half-track, Charles decided to abandon the farmhouse which the 28th were using as a company command post, and occupy a pillbox across the trail to its rear. The farmhouse was under direct enemy observation from the hills opposite, behind Uttefeld, a mile away. Of the platoons, the 3rd on the right was most exposed. They could not raise their heads from the foxholes during the day without drawing enemy fire. Thus the changeover was taking place at night.

The interior of the bunker — their new home — was sixteen feet square and eight feet high. The air, cold, damp and stale, smelled of dried sweat. In the early hours of October 4, the 28th Division lieutenant asked Charles to confirm to his commander that the changeover had been accomplished, and that the 23rd Infantry, 2nd Division, was now in place:

Above: **The farmhouse near Grosskampkenberg (see map overleaf) taken over by Company I on October 4, 1944. It was exposed to enemy positions and Charles MacDonald, the new company commander, decided to vacate it in favour of a pillbox situated a few yards to its rear. This picture was taken by Patrick Hargeaves in 1981 from the site of the pillbox.** *Top:* **Charles MacDonald beside the overgrown entrance. His 2nd Platoon was positioned in the dip behind him with the 3rd Platoon on the knoll on the right in the middle distance.**

Panorama of the landscape near Grosskampkenberg, looking from German positions on the high ground near Kesfeld. The pillbox and farm occupied by Company I lie across the far side of the valley, just above the roadside marker.

The worst fears triggered by the lieutenant's briefing were heightened that first night. A call came from the 2nd platoon. Technical Sergeant Rupert L. Middlebrook said that there was some sort of tracked vehicle out front, and it was headed their way. A call to the supporting artillery, then an agonising wait until the rounds screamed overhead, then reassurance for MacDonald as the rounds fell somewhere near the source of the noise. Middlebrook reported that it was retreating.

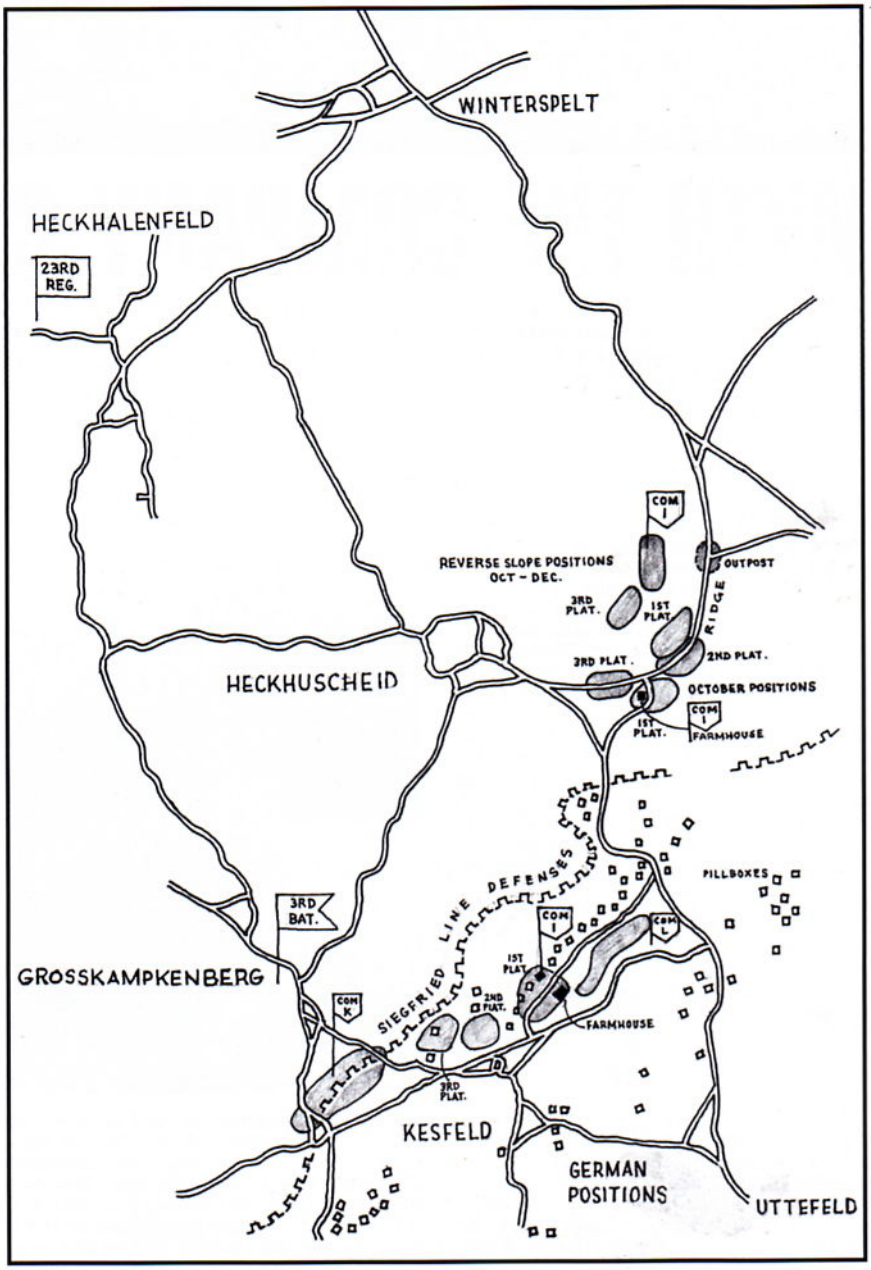
The tension for that small group in the pillbox CP showed no sign of diminishing during the subsequent days. There were further adventures forward by the enemy tracked vehicles. There were exchanges of small arms fire, incoming enemy artillery fire, and long, long nights of awaiting the unknown. With the ring of the 'phone in the pillbox on Sunday, October 8, Charles was convinced that it would be a message with orders to attack the enemy-held ridge to their front. They had, after all, been in the positions for almost a week. The call turned out to be routine: church services were to be held in Grosskampkenberg. However, there was no practical way in which Company I could attend.

The company commander's dreams were shattered that night by fire from a tank or SP gun directed at the pillbox and farm. The company's mortar squad was hit, as was a 57mm anti-tank gun from the attached AT platoon. The next day, artillery fire from a very large calibre gun some distance behind enemy lines fell in the company area. Tension was notched up even higher that night when, at 3 a.m., an enemy counter-attack fell on the left flank of the company, and the right of Company L. The defences held, and the force, from the German 91st Infantry Division, was driven back. They came again the next night.

Then, at the end of the ninth day in the positions, there was a call from Lieutenant Colonel Paul V. Tuttle, the 3rd Battalion commander. For Charles it was good news:

I wanted to jump and kick and scream with joy. Tears came to my eyes and I thought I would choke with happiness . . . My battalion runners would arrive around midnight leading the men of Company B . . . Company I was to be relieved.

The reason for the attention paid by the enemy to Company I while occupying the pillbox positions was partly because this was at one of the deepest penetrations of enemy territory. In mid-September 1944, the US 28th Division, V Corps, under Lieutenant-General Leonard T. Gerow, had attacked near Kesfeld-Uttefeld, penetrated the Siegfried Line, and taken a number of pillboxes. The Germans counter-attacked the tip of the penetration at this point, using flame-throwing armour. The Americans regained territory resulting from this action, but a change in the overall Allied strategy meant that this area became defensive in nature. Attacks continued by Allied units further north, near Aachen. The region here on the Belgian-German border over which the Siegfried Line defences meander has few good roads, and is rugged country. Here the advance more or less halted for the winter.



Nine days after they had entered the front line, Company I was moved a mile or so to the north. The company command post was located near Heckhuscheid in the white house on the right, with access via a ladder to the upper storey rear window.

Company I, 23rd Infantry, was to take over much more tenable defensive positions at a town called Heckhuscheid on a ridge. The positions were taken over from Company C. The command post was in a house about half a mile north of the town. Access was by ladder to a second floor rear window. The front door faced east across the valley towards the dragon's teeth of the Siegfried Line and the enemy. A highway past the house was under enemy observation in the daytime.

Through the mid-October days the weather worsened, but Company I had a less difficult time than when in the pillbox positions. There was some incoming artillery and mortar fire, some of it concentrated on the farmhouse CP. There was some light enemy patrolling to their front.

The defensive positions behind Heckhuscheid being inspected by Charles during his visit in 1983. The houses of the village occupied by the 1st Platoon can be seen on the ridge in the distance. When ordered to withdraw from the exposed hilltop position, the 'winter' dugouts were constructed in the woods in the valley on the right.

After a few days in the new positions, Colonel Tuttle called together the company commanders of the 3rd Battalion to tell them that the units were to 'dig in for the winter'. Those units still occupying pillboxes were to withdraw from the Siegfried Line defences, and these were then to be blown up. Company I was to pull back from the exposed hilltop positions. Substantial dugouts were to be constructed on the reverse slopes of the hill, leaving outposts on the ridge. As far as this sector of the Allied front was concerned, it thus appeared that ambition to advance further through the rugged terrain of the Ardennes was to be curtailed — at least for the time being.

Each rifle squad, the machine gun section, each mortar squad, and each section of a machine gun platoon of Company M, 23rd Infantry, had a substantial dugout constructed from fir trees. These were fitted out with bunks made by stretching potato sacks over timber frames:

But the men supplemented these with tables, table covers, mirrors and stoves from the houses in the 1st Platoon's area, and Heckhuschied. The town was denuded.

Left: **The dugouts were substantial structures like this one illustrated in the 2nd Division history.** *Right:* **Sergeant Hubert E. Bankston of the 23rd Infantry pictured on October 17 in his de luxe foxhole on the reverse slope at Heckhuscheid.**

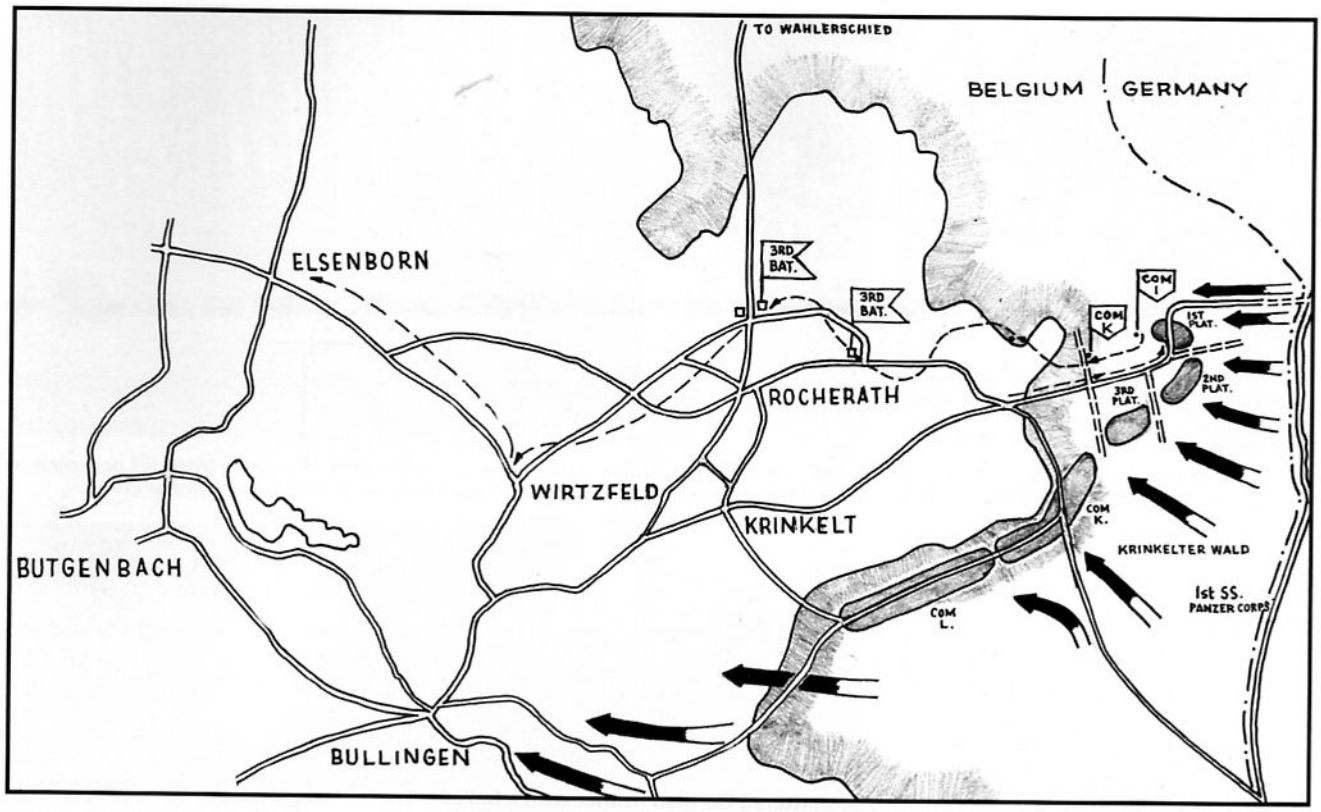
The 3rd Platoon and the company kitchen were located in the wood to the left, with the 2nd Platoon and company CP in the one on the right. Charles was here from mid-October to mid-December 1944, and it was during this time that he began writing *Company Commander*.

For the company there was a week of rest and reorganisation in the division rest area at Lommersweiler, Belgium, their place in the line being temporarily relieved by Company F from the regiment. On their return, there was little to report other than sporadic enemy shelling. Captain MacDonald was increasingly required to send out patrols, sometimes in search of information which, he felt, could easily be obtained by daylight observation. Long nights of anxious waiting at the company CP dugout for the return of these patrols left Charles feeling that they were achieving little more than providing a neat typewriten report to go on to the next higher headquarters:

It seemed that since we were now in a 'quiet' position, every officer in the division with the rank of Major or above wanted to inspect the company area.

He finally protested at the visits, and eventually they stopped.

A shattered German helmet with a bullet hole just above the rim at the rear and the remains of a 'potato-masher' grenade found still lying on the surface in the 2nd Platoon area.



By early December there were rumours that the division was to pull out of the substantial defensive positions, and go into the attack. On the tenth, the arrival of their replacements substantiated the rumours. The company, with the rest of 2nd Division, were to move north to the vicinity of Elsenborn, Belgium, to launch an attack on the Roer river dams. Captain MacDonald's men were amazed at the appearance of their replacements, fresh from the States:

And horror of horrors, they were wearing neckties! Shades of General Patton! The date was five days before December 16th, 1944. The location was near St Vith, Belgium, on the southern half of the First Army front. The relieving unit was the 106th Infantry Division.

This division was to go down in history as one of the hardest hit American units of World War II. A large German force was, within days, destined to roll through the positions so recently vacated by Company I, 23rd Infantry, 2nd Division:

The long convoy of trucks pulled to a halt on the highway at a road junction on the edge of the fir forest. I could see the highway extending to the left through the woods towards the east where my map showed it entered the Siegfried Line at a point a mile and a half distant. The road to the right ran south along the edge of the woods back towards Büllingen. The snow around the road junction had been churned into a yellowish mixture of snow and dirt from recent heavy shellings. I tried to ignore the tenseness that came over me as I thought that at any minute a hail of screaming shells might descend upon us.

It was Saturday, December 16. Company I had been in an assembly area near Elsenborn, expecting to be committed at any moment to the attack that the other units of 2nd Division were making on the stronghold of Wahlerschied. Instead, Captain MacDonald was called to battalion HQ. There was an air of seriousness as Colonel Tuttle pointed to a map. There had been a 'Kraut' penetration in the 99th Division sector near a small town called Rocherath . . . They were to move as soon as possible to a forward assembly area in the woods near a road junction about a mile beyond the town . . . That was all the information available, except that they were not to participate in the division's attack . . . He didn't know if they were to attack or defend in the woods . . .

And so under overcast skies, darkening with the onset of dusk, Charles jumped down from the cab of his two-and-a-half-ton truck at the road junction at the edge of the woods. He was anxious to have the company assemble and move beyond the crossroads before it was again shelled. Captain Morris B. Montgomery, the battalion operations officer, directed him, without breaking step, to take the company down the road to the left. They were carrying blanket rolls, three meals of K-Rations, and packs, and were to go down the trail for six hundred yards to the east. At a slight bend there, Montgomery pointed to a map, Charles had to place a platoon astride the road as a road block, and swing the other two platoons to the right rear to tie in with the 23rd's Company K at a firebreak.

Soon after the men had passed the road junction, an artillery barrage landed to their rear. Charles hurriedly motioned the company forward, following a shallow draw to the left of the trail. They reached a point where the trail turned sharply to the left and then again to the right. Here MacDonald directed the 1st Platoon, commanded by 1st Lieutenant Long H. Goffigon, to establish the road block. Lieutenant Brock's 2nd Platoon was to tie in with Long's right flank in the woods beyond, and parallel to the

The road junction at the edge of the woods, with Charles pointing up the road leading to the east. This was the route taken by Company I on December 16 in an attempt to halt a surprise German attack . . . an attack which was, in reality, the opening gambit in Hitler's massive last-ditch offensive.

Position of the roadblock, looking east. The 1st Platoon positions were to the left of the old trail (now a tarmac road).

The trail is top right, Charles is inspecting foxholes occupied by Company I's machine guns from the weapons platoon.

trail. The 3rd Platoon under Lieutenant Wilson was to be on Brock's right again beyond the highway, in turn tying in with Company K.

A platoon of heavy machine guns from Company M, the weapons company of the 3rd Battalion, were divided between the 1st and 3rd platoons of Company I. To protect the flanks, Company I's own weapons platoon placed their light guns in the shallow draw to the left of the trail at the bend on 1st Platoon's left; the mortar section was positioned along the side of the trail the only spot with overhead clearance to fire.

The company CP was positioned a few yards to the rear of the draw behind 1st Platoon, and to the left of the trail:

I told Savage [the company communications sergeant] *to begin laying telephone wire to the platoons. I did not believe that Colonel Tuttle would attack until dawn, and we would need communications during the night.*

As the small CP group hacked away at the frozen ground in an effort to dig slit trenches, the battalion runners arrived. The colonel wanted to see Charles, with a map.

The colonel's foxhole was a squeeze with three men inside. It was underneath the low, overhanging firs, just beyond the firebreak which separated Companies I and K. A tent was thrown over the entrance to mask out the flashlight. The position was this:

A battalion of the US 393rd Infantry Regiment, 99th Division, had been defending a ridge to the east . . . they had been attacked early that morning . . . a superior enemy force had knocked them off position . . . They were partially surrounded but still fighting . . . somewhere out there to the front of the positions . . . The orders . . . To attack and relieve the cut-off battalion . . . Colonel Tuttle had managed to put off the attack until morning. It would allow precious time to consolidate the present positions, and prepare.

Charles crawled back into his own sodden slit trench and, one by one, briefed his platoon leaders by the light of a match. As he was talking to the last of them, a call came from the battalion commander: they were to dig in where they were . . . he was to report back to the colonel . . . they were to hold the positions they were occupying . . .

At Regiment, it was becoming apparent that the German attack was on a large scale, too large for a battalion-sized counter-attack to be successful. The mission became 'Hold at all costs'.

MacDonald learned that his supply sergeant had been wounded in the artillery barrage at the crossroads. Seven had been killed, and twenty wounded.

The bend in the trail through the woods. The firebreak marks the division between the platoons, with the 2nd to the left and the 3rd on the right.

At the bend in the trail, a tree stump with signal wire still wrapped around it. Here Sergeant Savage ran out telephone cables to the platoons: 1st Platoon to the left of the trail, 2nd and 3rd to the right.

With the trail running right to left in the background, Charles enters the pine forest to search for the location of his command post which he occupied on the night of Saturday, December 16, 1944.

The gently sloping ground in front of the positions where the 2nd Platoon was dug in. This was the killing ground for the waves of attacking German infantry on Sunday. The shallow valley can just be seen through the trees.

As night fell that Saturday, the men of Company I peered out from the defensive line into a very limited field of fire in the pine woods. They could see the ground in front of them fall away into a shallow valley, with a ridge beyond:

Small arms fire punctuated the night noises to our front. Around two o'clock a German burp gun erupted several hundred yards to our right. An American machine gun gave a slow, studied answer. Like a Model-T Ford in contrast to the 'Brrrp' of the enemy gun.

Artillery whistling overhead made the tops of the tall firs in the woods sway to and fro. News over the artillery radio to and from the lost battalion of the 393rd revealed overwhelming casualties. Their plight seemed hopeless. A message was sent for them to hold on as long as possible. There could be no relief.

Dawn on Sunday, and a platoon of Sherman tanks from the 2nd Division's 741st Tank Battalion arrived at the bend in the trail to take up defilade positions on the shallow draw on Company I's left flank. They were a reassuring sight for the men of the company. That point with its view of the trail snaking on up the shallow valley to the east was the only possible tank approach for the enemy.

Ten o'clock, December 17. Small arms fire began to 'zing' through the trees above the heads of Company I from the fire-fight ahead of them. More radio exchanges with the cut-off battalion were followed by a decision — they were going to fight their way out.

Charles' assessment of the relative strength of his defences at the CP, just behind the 1st platoon, revealed a woefully small group of assorted personnel, inadequately armed should the enemy come down the trail. At 10.30 a.m. the first thing down the road was a Jeep headed in their direction at high speed and loaded with men from the 99th Division's battalion:

A ragged column of troops appeared over the wooded ridge to the front of 2nd and 3rd Platoons. There were not over two hundred men, the remnants of the nine hundred who had fought gallantly to our front since they were hit by the German attack the preceding day.

Some of the men of the 99th stayed with Company I to fight. Others handed over ammunition and grenades. They wandered on to the rear. There was a pause.

There was a call from Lieutenant Brock over the sound-powered telephone asking for artillery fire. The call was scarcely over when there was a hail of small arms fire:

There was no doubt now. My men could see the billed caps of the approaching troops. They were Germans.

The artillery liaison officer with Company I's CP called for volley after volley of supporting artillery fire from the guns of the 99th Division. It came, just three rounds at a time. What was more, the tanks started to leave the 1st Platoon positions for the rear. Colonel Tuttle passed an explanation over the radio that they were manoeuvering to 3rd Platoon's area 'to improve their positions'.

Over the wire to the CP, the platoon leaders begged for more artillery fire as the Germans advanced up the slope towards their positions. Captain MacDonald could only lie flat on his back in his shallow foxhole with the platoon 'phone in one hand, and the handset from the SCR300 battalion radio in the other. His requests to the artillery were met by what seemed like too few rounds in each salvo. Long called to say that a mass of assembled infantry and tanks had appeared on the ridge to Company I's left front. Six rounds of artillery fire were directed at them, and they dispersed.

The enemy in front of 2nd and 3rd Platoons meanwhile regrouped in the draw to attack again. Again and again they pushed forward, regardless of the growing number of their dead and wounded in Company I's field of fire. A call from the 2nd Platoon reported the first soldier killed. All the platoons were by now begging for more ammunition. All battalion could say in response was that it was doing its best. It had moved its CP meanwhile further to the rear.

Seven times the enemy assaulted the thin line of foxholes held by Company I. Each time they were repelled. Germans were being killed only ten yards in front of the company's riflemen.

By half past three that Sunday afternoon the machine-gunners protecting the company's left flank were all but out of ammunition. Lieutenant Goffigon came over the 'phone. He could see enemy tanks. Five Tigers were 300 yards away, lumbering up the trail from the east. MacDonald's options were closing fast . . . He had to get those Shermans into action . . . The riflemen couldn't possibly fight Tiger tanks . . . 1st platoon had only three rounds of bazooka ammunition . . . Unless the Shermans could stop them, three rockets were all that there was between Company I and Kingdom Come . . . Bad news over the radio:

The're gone, Cap'n. They pulled back to K Company fifteen minutes ago.

Almost immediately the top of a fir tree above the CP was snapped by 88m fire. The tanks were only 75 yards from 1st Platoon, pumping direct fire into the foxholes with impunity. MacDonald called battalion:

If we don't get the tanks, we can't hold another five minutes. Then to Long. *Hold Long! For God's sake we've got to hold!*

It must have seemed hopeless. The sound of battle reached a level which he never before thought possible. From the CP he could see a gaggle of men walking down the draw between him and the trail. They were headed to the rear. It was the left flank of 3rd Platoon. He could not stop them.

It rapidly became apparent that the situation was impossible to hold . . . calls to Brock to pull back 2nd Platoon to the firebreak at the right rear, and to Sergeant Garcia at 3rd Platoon . . . The platoon commander was seriously wounded.

Charles stands in the former 3rd Platoon positions as seen from the German side. Lieutenant Wilson was badly wounded here.

The firebreak (looking east) where the attempt was made to hold the line. Charles stands where Pfc Richard Cowan set up his machine gun in an action which subsequently led to the award of the Medal of Honor. Another Medal of Honor went to Sergeant Jose Lopez who, single-handed, held off repeated attacks on Company K's flank.

The CP group had barely reached the firebreak where MacDonald hoped they could hold, when the enemy was upon them again. PFC Richard Cowan set up a light machine gun only five feet from the foxhole which Charles had found. Direct fire from the Tigers in response broke the tree tops overhead. He ducked, caught in a very uneven cross-fire. Then, on looking out again, he discovered that the others had now fallen back.

The remnants of the little CP group stumbled back through the firs towards the road junction at the edge of the forest. Fire snapped all around them. It seemed impossible not to be hit. Overwhelming MacDonald's thoughts was the feeling that he had failed to carry out the orders. The company had not held the positions. He chanced upon the Company K commander, Captain Howard C. Wilson, and passed him the stark news that there was no one on his left flank now. Wilson's men were already falling back under the tank fire.

Wilson made a decision. They were to fall back into the villages of Krinkelt-Rocherath. Battalion was informed. They slipped and slithered to the edge of the woods and the exposed open hillside in the direction of Rocherath came into view. Wilson decided to hold up in the thicket just north of the road junction, and on the edge of the wood. Charles MacDonald and the few men with him decided to stay with the Company K group. He had no idea where the rest of his own company were. The Germans were already at the point where the trail emerged from the woods, surrounding two knocked-out Shermans. These were the tanks which had formerly been at Company I's positions. Here they had stood against the Tigers in a valiant, one-sided fight in which the officer in charge was killed.

MEDAL OF HONOR

RICHARD ELLER COWAN

Rank and organisation: Private First Class, Company M, 23rd Infantry, 2nd Infantry Division.
Place and Date: Near Krinkelter Wald, Belgium, 17 December 1944.
Entered service at: Wichita, Kansas
Birth: Lincoln, Nebraska
G.O. No: 48, 23 June 1945.

CITATION

He was a heavy machine gunner in a section attached to Company I in the vicinity of Krinkelter Wald, Belgium, 17 December 1944, when that company was attacked by a numerically superior force of German infantry and tanks. The first six waves of hostile infantrymen were repulsed with heavy casualties, but a seventh drive with tanks killed or wounded all but three of his section, leaving Private Cowan to man his gun, supported by only 15 to 20 riflemen of Company I. He maintained his position, holding off the Germans until the rest of the shattered force had set up a new line along a firebreak. Then, unaided, he moved his machine gun and ammunition to the second position. At the approach of a Royal Tiger tank, he held his fire until about 80 enemy infantrymen supporting the tank appeared at a distance of about 150 yards. His first burst killed or wounded about half of these infantrymen. His position was rocked by an 88mm shell when the tank opened fire, but he continued to man his gun, pouring deadly fire into the Germans when they again advanced. He was barely missed by another shell. Fire from three machine guns and innumerable small arms struck all about him; an enemy rocket shook him badly but did not drive him from his gun. Infiltration by the enemy had by this time made the position untenable, and the order was given to withdraw. Private Cowan was the last man to leave, voluntarily covering the withdrawal of his remaining comrades. His heroic actions were entirely responsible for allowing the remaining men to retire successfully from the scene of their last-ditch stand.

Left: **Charles examines the west side of the firebreak in the region of the battalion CP.** *Right:* **This overgrown foxhole still contained a Coleman stove used for heating rations. Nearby, coils of signal wire confirmed the location of the CP.**

A Company M machine-gunner, PFC Jose M. Lopez, of Brownsville, Texas, opened up with his ·50 calibre machine gun on the German tanks as they emerged at the road junction on the edge of the woods. As with Cowan before him, his efforts drew direct fire from the Tigers' 88s. Over the noise of the heavy gun, Charles could hear Captain Wilson directing his men to retire into Rocherath. MacDonald took his chance to emerge from cover between the Germans and Lopez, and again slithered and slid in the snow, bullets kicking around him. He could not see the town in the mist and darkness. He struggled on up the open hillside:

I felt like we were helpless little bugs scurrying blindly about now that some man monster had lifted the log under which we had been hiding.

Suddenly in the mist there was a small group of GIs digging in along a hedgerow. One of them, face covered in beard and dirt, identified his unit as the 2nd Division's 9th Infantry. He was not pleased with his lot. Not only had they been attacking for five days, presumably at Wahlerscheid, but they then had had to turn round and take up 'someone else's defense'. His analysis was clearly that the 23rd Infantry had been too easily knocked off position. However, he did know of the whereabouts of the battalion command post. Some 9th Infantry officers told Charles where he could find his own battalion CP: in a farmhouse beside the highway between the woods and Rocherath.

In a stone barn was Colonel Tuttle:

Nice work Mac.

MacDonald was stunned. He could not control his emotion at what the colonel was saying. This was no local counter-attack, it turned out. The enemy had broken through, and to the south had taken a number of towns. The 2nd Division quartermaster and kitchens, and a lot of rear echelon troops had been captured. The rest of the division had to abandon the attack at Wahlerscheid. The 3rd Battalion, of which Charles' Company I was part, had, according to Tuttle, held in the woods long enough for the two other 2nd Division regiments, the 9th, and the 38th Infantry, to withdraw past the vital cross-roads between Krinkelt-Rocherath and the woods:

I mean you did a good job, Mac.

He had not failed after all.

The thicket just north of the road junction on the edge of the woods near Rocherath. This is where the company commander, with some men from Company K, managed to escape across the fields to the left on the 17th.

After the retreat from the woods, Captain MacDonald met Colonel Tuttle at this farm then occupied by the 3rd Battalion.

This is the barn where Charles slept on Sunday night before being rudely awakened by a tank from the 12. SS-Panzer-Division firing directly into the building. The garage is a recent addition.

Inside the barn were six others from Company I. According to reports, a lot of the company's men got into Krinkelt-Rocherath, to continue the fight there. The new orders were to join up with Company L and dig in on the flank of the 9th Infantry. But first, as cold and wet as he was, Charles spread out some hay at the end of the barn, and immediately fell into a sleep of utter exhaustion:

Wake up, Cap'n! Wake up! The sonofabitches have hit us again. They're all over the goddamned place!

Tracer flashed past the barn. The others had gone. It was dark, he didn't know who was shaking him. He could see a tank firing point-blank into the barn. The hay, his bed, was on fire. Leaving his carbine, he was up and running:

The night was alive with more noise and flame than I thought was possible for men to create. Here was a 'movie war'. Here was Armageddon.

Out in the dark, open fields, criss-crossed by tracer fire, he came across two men from the company. They thought that everyone had got out except for two in the front part of the barn. Following the relative cover of a hedgerow, they came across some men from the 9th Infantry. These men had no idea of where they were but they were digging in. Their officer didn't even know the way to Rocherath, but he did know that there was a battalion command post at a farm at a crossroads to the north-west: the one through which the rest of the division had passed earlier. It turned out that headquarters of the 3rd Battalion, 23rd Infantry, was also at this farm. Colonel Tuttle was in the cellar. It was midnight Sunday, December 17.

The noise of battle could be heard all the rest of that night. News came in from the adjoining CP that the company of the 9th Infantry at the farm Charles had left earlier had been overrun. The company commander had actually called for supporting artillery fire to be directed on his own position, to try to dislodge the attackers. Only twelve men of the company got out.

MacDonald set out at seven o'clock the next morning in an effort to locate other men of the battalion. It proved impossible to move away even from the area immediately around the crossroads. He returned to the farm, and was stuck in the defensive perimeter around it as the fighting continued there all day. His thoughts again returned to the men of the company. He wondered what had happened to his communications sergeant, Raymond Savage, last seen at the firebreak in the woods.

A small group of Company I men were gathered and sent out to fill a gap in the 9th Infantry lines. Their commander, Lieutenant Middlebrook, returned at three o'clock for more men, having been tangled in a firefight before they reached the designated area. There were no more men available and, anyway, almost immediately machine gun fire broke out in the near vicinity of the farm. The Germans were now closing in down the undefended Wahlerscheid road. New orders were cut. They would withdraw again, this time to the south-west, and the vicinity of the small town of Wirtzfeld.

Charles MacDonald and the small group from Company I spent the night of Monday, December 18 billeted with the headquarters group of 2nd Battalion, At 11 a.m. the following morning the colonel instructed MacDonald to assemble the remaining men in preparation to move to Elsenborn in order to dig in a second line of defence, should the Germans manage to breakthrough again. They gathered to wait for the transport that was to take them:

I saw the truck come round a bend in the muddy street. There were bullet holes in the shattered, dirty windshield, and I could not see the driver until he pulled up alongside. There was no mistaking the slow grin and the drawling, surprised 'Hello, Captain'. No one ever pronouced the two syllables of the word 'captain' quite like that.

It was Sergeant Raymond Savage.

At the time, Charles MacDonald did not know that the events of those few days in December 1944 were the opening blows in what became famous as the Battle of the Bulge. What he and his men suspected as a local counter-attack had turned out to be the massive German offensive in the Ardennes. Both the 2nd and the 99th Divisions played a crucial part in blunting the strongest thrust of the 1st SS Panzer Corps. The German units, 277th Volksgrenadiers, with 12th SS Panzer Division, were significantly delayed here by these two American units, and ultimately forced to turn further south.

On January 15, 1945, Company I, under the command of Captain Charles B. MacDonald, went into the attack further south at Weismes, Belgium. It was the Allied push to close the 'Bulge' and reduce the enemy gains. During this attack in the pine woods at the Ondenval-Iveldingen pass, MacDonald was wounded. He was evacuated, and was never to return to Company I. He did, however, fight again with the regiment until the campaign in Europe ended. But that's another part of his story.

He spent all of Monday (the 18th) in this farmhouse beside the crossroads. The road to the right is from the direction of Wahlerscheid from whence came the German troops who finally dislodged the battalion CP. Charles MacDonald first revisited the battlefield in the summer of 1949: 'I brought a bicycle and went into the Ardennes and down this road into the woods where my company had been. It was very eerie. I felt quite ill at ease being by myself. The little village behind me was still totally destroyed. This was the little border area between Belgium and Germany, and there was a Belgian customs official on a bike speaking to me in German. He wanted to know what I was doing down there. That encounter, plus seeing the area where I was when my company had gotten hell knocked out of it, just made me feel eerie. I didn't go all the way. I turned around and went back. Now that we have reached an age when most of us are retired and have enough money to go back, I finally went all of the way in 1980. I was doing research for my book and by this time I had come to know a couple of Britishers [Patrick Hargreaves, and Will Cavanagh — now living in the Malmedy area]. The mother of one was Belgian and he was thoroughly knowledgeable. It's funny. This time I felt much better just having someone with me. It's an amazing experience to go back to your own foxhole. You remember things, buddies that were killed. It's sad, but it was once part of your life . . . the most momentous event of our lives . . . something that has stuck with us for all time.'

CLEARING THE RHINE

Traversing six countries, the Rhine is Europe's most important river and the main artery of the waterborne transportation system of Germany and Holland. The river has a total length of over 800 miles (1300 kilometres) with an average width in Germany of 200 to 500 metres, narrowing to 120 metres at the fabled Lorelei rock between Mainz and Koblenz. Within Germany the river was navigable for 443 miles — from Rheinfelden on the Swiss frontier above Basle to the border with the Netherlands.

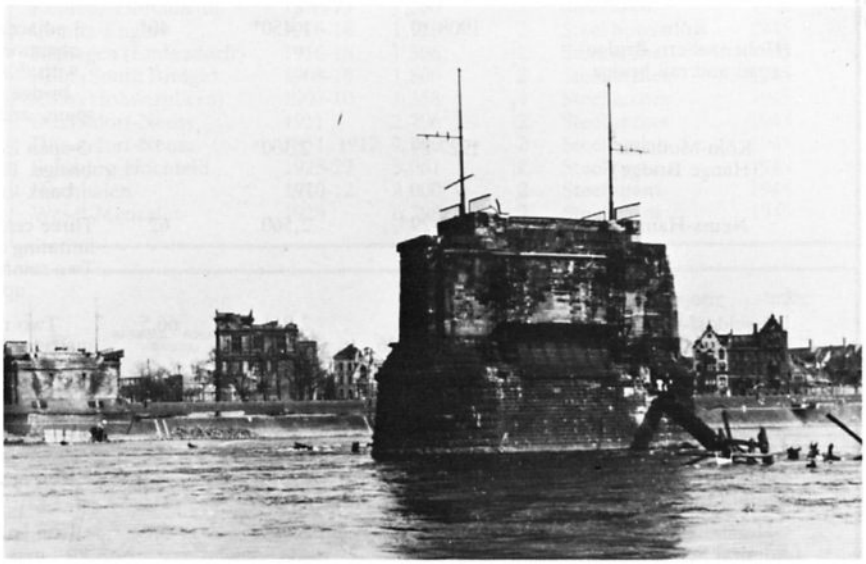
During the Second World War, inland waterways in Germany had been called upon to relieve pressure on the railway system and many bulk consignments were switched from rail to barge. With the occupation of France and the Low Countries, the German authorities could exert unified control over all the rivers and canals in north-west Europe, supplementing their barge fleet with French, Belgian and Dutch craft. The Rhine linked in with all the main waterways of the occupied countries becoming an even more vital factor in the transportation of war materials.

Forty-six bridges crossed the river in Germany in 1945. The 21 road bridges were mostly very large structures and of considerable variety. The oldest existing bridge, built purely for road traffic, dated from 1881-85; five were constructed in the years immediately prior to 1939, and three were built during the war. The longest bridge was the Hermann Göring at Neuwied with the second longest being the Adolf Hitler at Krefeld-Uerdingen.

Of the railway bridges between the Swiss and Dutch frontiers, these varied from single track structures in the upper course, where railway traffic was less intense, to the great Hohenzollern bridge which carried four railway tracks, besides a tramway and a road. The navigation authorities for the Rhine laid down that the navigation span of the bridges was to be 492ft to 623ft, according to the angle between the bridge and the fairway.

By April 1945 the Allies had breached the river in a score of places *(see After the Battle No. 16)* using floating tactical bridges, the Germans having demolished spans of every bridge in the path of the Allied armies (except the Ludendorff railway bridge at Remagen which stood virtually intact for ten days after its capture before it collapsed).

Although the tactical bridges were speedily replaced with high-level, semi-permanent bridges, the river was in reality useless as a waterway with demolished road and rail bridges effectively blocking the Rhine to all river traffic. The clearance job was given high priority as it was essential to be able to get coal and other commodities out of the Ruhr before the winter freeze-up. Royal Engineers Port Construction Units were therefore given the task of clearing a navigable channel as quickly as possible from Koblenz to the sea with the assistance of Dutch engineers in Holland.



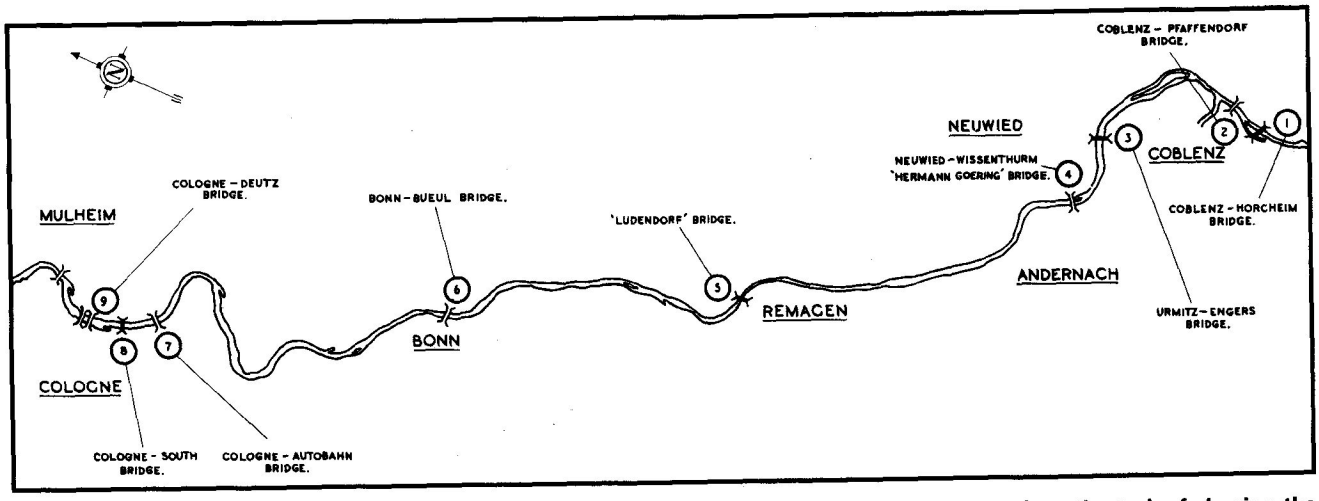
The Oberkassel road bridge at Düsseldorf. (Bridge No. 14 in this survey.) It would have become as famous as the bridge at Remagen had it been captured intact for American tankers actually reached the western end before it was blown in their faces. It completely blocked the Rhine and its clearance was entrusted to Royal Engineers Port Construction and Repair troops. Within three months of the German surrender, a navigable channel had been cleared through the debris, and work had been completed by the end of September 1945.

ROAD BRIDGES OVER THE RHINE IN GERMANY AS AT 1945

Location	*Date Built*	*Length ft.*	*Width of roadway ft.*	*Construction*	*Destroyed*
Strassburg-Kehl	1941	1,070*	27	9-span bridge, some 700 ft. upstream from the old bridge. Wide span east side.	1945
Strassburg-Kehl	1895-97	787·5	27·2	4-span lattice girder bridge.	1940, 1944
Maxau-Karlsruhe road and rail bridge	1935-38	1,000*	26	2-span lattice girder bridge. Road and rail bridges separate superstructures on common pier east of centre of river.	1945
Speyer road and rail bridge	1935-36	1,847	20	2 main steel lattice girder spans; 7 flood spans. Road and rail bridge separate parallel structures, common central pier.	1945
Mannheim-Ludwigshafen road and rail bridge	1867 rebuilt 1930-32	1,240	N. road 21·3; S. road 24·6	3-span steel lattice girder bridge. Road bridges have separate superstructures from and are distinct from rail bridge to south; two common stone river piers. Small viaduct carries approaches at each end.	1945
Worms (Ernst Ludwig Bridge)	1897-1900	2,441	21	3 river spans, steel arch deck type over 13 concrete and stone flood spans on approaches. 2 towers at each end of bridge.	1945
Gernsheim	1940	1,510*	32*	10-span bridge, 2 high long spans in centre, low and short spans at each end. Central portion has steel lattice girder superstructure.	1945
Mainz-Kastel	1881-85, widened 1931-34	1,800*	35	5-span steel arch (double-hinge) deck bridge.	1945
Koblenz (Pfaffendorf Bridge)	Erected as railway bridge 1862-64, rebuilt for road 1933-35	1,000*	39	3-span bridge; double-hinged steel arches with lattice girders. Roadway superimposed on these.	1945
Neuwied (Hermann Göring Bridge)	1934-35	3,265	28	Two spans over river, one over island in between, and one over railway on south bank. Iron and steel lattice girder bridge.	1945
Bonn-Beuel	1896-98	2,815	23	3-span iron and steel bridge. One steel arch through span, and two steel arch decked spans. Three flood spans on west bank and seven on east bank.	1945
Köln-Rodenkirchen autobahn bridge	1943	2,400	2 × 24	3-span suspension bridge, parallel lattice work. Reinforced concrete towers and abutments.	1945
Köln-Deutz (Hindenburg Bridge)	1913-15, widened 1939-40	1,410	36	3-span iron and nickel steel suspension bridge, 2 stone access viaducts.	1945
Köln (Hohenzollern Bridge) road and rail bridge	1908-10	1,450*	40*	3 adjacent iron and steel structures on common piers; 2 downstream are rail with double tracks. Upstream is road bridge, carrying tram traffic. Three spans, arched lattice girders and tie rods.	1945
Köln-Mülheim (Hänge Bridge)	1927-29	2,300*	?	3-span iron and nickel steel suspension bridge. East bank direct approach, west bank low-lying, with 6 minor spans.	1944
Neuss-Hamm	1927-29	2,560	62	Three central spans, cantilever truss type imitating curve of link suspension bridge. Two reinforced concrete river piers. Four approach spans each end.	1945
Düsseldorf-Oberkassel (Skagerrak Bridge)	1896-98 rebuilt 1925-26	2,211	66.5	Two main through-arch spans on masonry piers (lattice girder arches with tie rods). 3 western and 1 eastern approach spans of steel arch deck type.	1945
Krefeld-Uerdingen (Adolf Hitler Bridge)	1933-36	2,900*	40	Steel suspension bridge.	1945
Duisburg-Hochfeld, (Admiral Graf Spee Bridge)	1934-36	2,700*	?	Iron and steel parallel lattice bridge.	1945
Homberg-Ruhrort, (Admiral Scheer Bridge)	1904-07	2,085	38	Iron and steel parallel lattice bridge, masonry abutments and piers.	1945
Wesel-Büderich	1914-17	1,700	25	Iron and steel lattice girder bridge.	1945

*Approximate

This table and that opposite have been compiled from information published by the Naval Intelligence Division of the Admiralty in May 1945. Details have been checked against German sources but data conflicts in some cases.



The blown bridges had all been of heavy steel and concrete construction and the swift-flowing current of four to five knots precluded the use of divers without screens or coffer-dams. Because of the obstructions, it was impossible to move heavy, floating, lifting gear to the sites so it was decided to try to disperse the underwater debris by using naval and RAF-pattern depth-charges with cutting charges for those sections above water. Tests carried out at Spick and Wesel proved this method to be satisfactory.

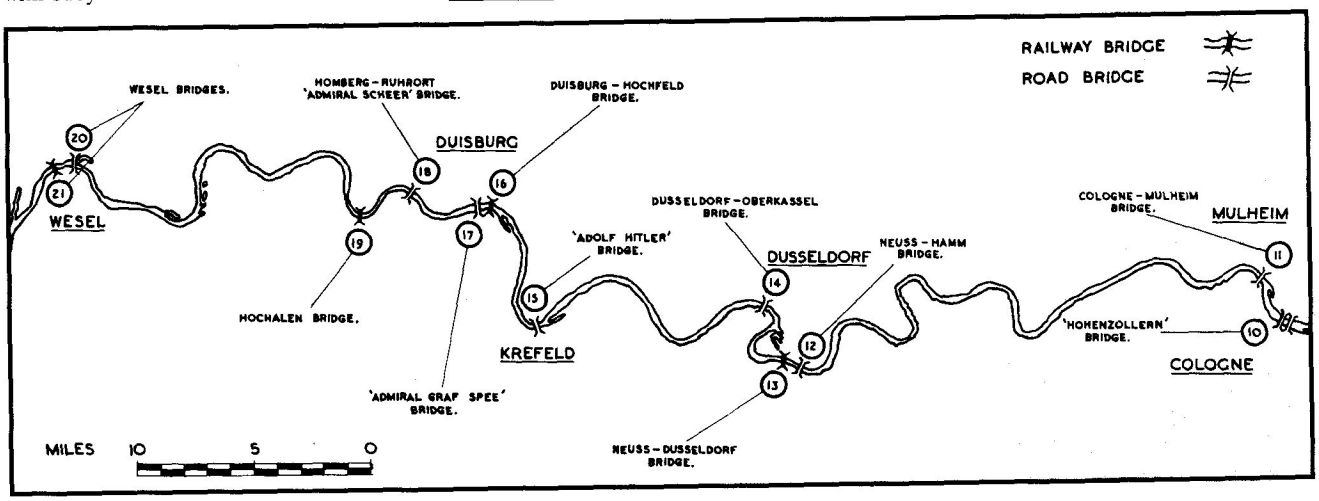
It was decided to clear a navigable channel 65 metres wide and four metres deep at Mean Low Water and precise levels were determined for each bridge. Steelwork above water was cut into small pieces using plastic explosive, gun-cotton and oxy-acetylene torches. These pieces were allowed to fall onto the river bed. What then remained underwater was attacked by depth-charges dropped into the joints of members, gradually blasting a gap through the debris. The position of submerged obstacles was determined by probing and by the use of echo-sounders. After a reasonable channel had been cleared, this was swept using a motor boat fitted with an adjustable frame which could be lowered to any required depth. Any pieces of steelwork encountered were again blasted with depth-charges.

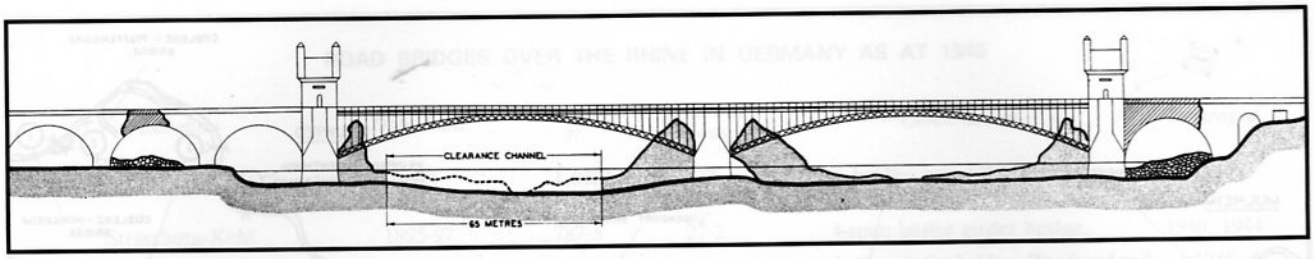
The Royal Engineers report on the operation stated that these rough and ready methods produced admirable results and it was doubted if a navigable channel could have been cleared by any other means in the time available. Considerable cratering of the river bed was caused and much steelwork no doubt found its last resting place in these craters. As the channel was made it enabled floating cranes to move about and begin serious clearance. The last stage of the operation was to mark the channel cleared with buoys.

Port Construction units of the Royal Engineers were given the task of clearing the river from Koblenz to the North Sea, which included the vital stretch through the industrial Ruhr. In view of the amount of destruction by the war's end, by which time every single bridge had been demolished, priority had to be given to first clearing a 65-metre-wide navigable channel. The northern sector of the river in Germany was split into two parts: from Koblenz to Cologne under Lieutenant-Colonel J. A. Stirling, and Neuss to Wesel (the Ruhr area) to Lieutenant-Colonel L. S. G. Homewood. (The Dutch section, which comprised bridges at Nijmegen, Arnhem, Zaltbommel and Moerdijk, was assigned to Lieutenant-Colonel D. H. May and Dutch engineers.)

RAIL BRIDGES OVER THE RHINE IN GERMANY AS AT 1945

Location	*Date Built*	*Total length, ft.*	*No. of tracks*	*Construction*	*Destroyed*
Hüningen-Weil Nord	1905-06	979	1	Two parallel	1939
Hüningen-Weil Süd	1877		1	bridges steel spans	1939
Neuenberg Süd	1907-08	1,150	1	Two parallel	1939
Neuenburg Nord	1876-77		1	bridges steel spans	1939
Breisach	1876-77	1,134	1	Steel spans	1939
Strassburg-Kehl	1861	892	2	Steel spans	1939, 1944
Roppenheim	1895	1,870	2	Steel spans	1939, 1945
Maxau-Karlsruhe	1938	1,180	2	Steel spans	1945
Germersheim	1875-78	1,043	2	Steel spans	1945
Speyer	1938	1,312	1	Steel spans	1945
Mannheim-Ludwigshafen	1932	1,312	2	Steel spans	1945
Worms	1898-1900	3,153	2	Steel spans	1945
Mainz-Süd	1910-12	3,450	2	Steel spans	1945
Mainz-Nord	1904	3,002	2	Steel spans	1945
Rüdesheim-Bingen	1913-15	2,583	2	Steel spans	1945
Koblenz-Horchheim	1876-79	1,260	2	Steel arch	1945
Urmitz-Engers	1916-18	1,920	2	Steel bowstring	1945
Remagen (Ludendorff)	1916-18	1,306	2	Steel arches	1945
Köln (South Bridge)	1908-10	1,800	2	Steel arches	1945
Köln (Hohenzollern)	1907-10	1,358	4	Steel arches	1945
Düsseldorf-Neuss	1911	2,706	2	Steel arches	1945
Düsseldorf-Neuss	1851, 1912	2,706	2	Steel arches	1945
Duisburg-Hochfeld	1925-27	3,061	2	Steel spans	1945
Hochhalen	1910-12	3,000	2	Steel spans	1945
Wesel-Menzelen	1928	6,398	2	Steel spans	1945



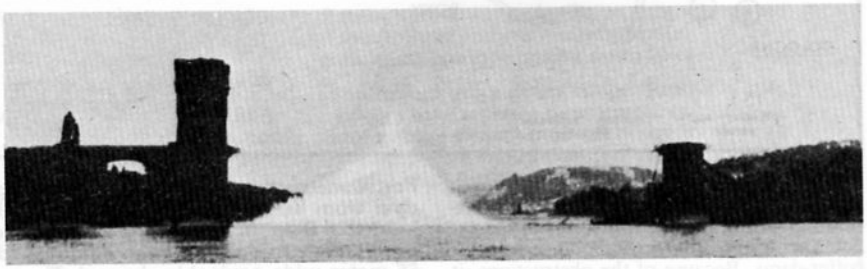


The Royal Engineers prepared superimposed drawings (looking from the southern side with the western bank on the left) to illustrate the profile of each wrecked bridge.

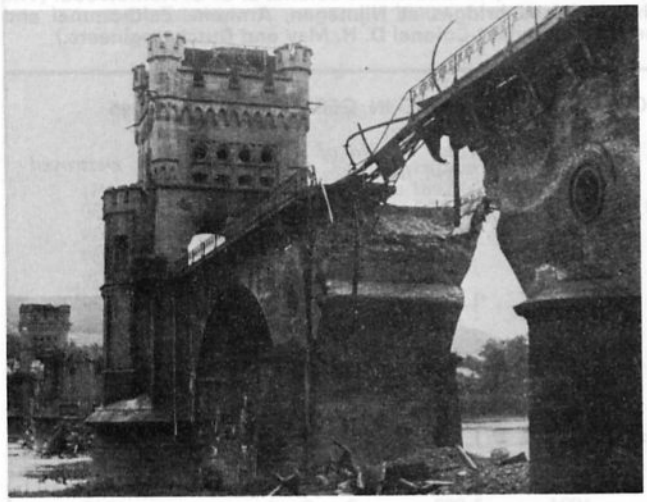
1. KOBLENZ-HORCHHEIM RAILWAY BRIDGE

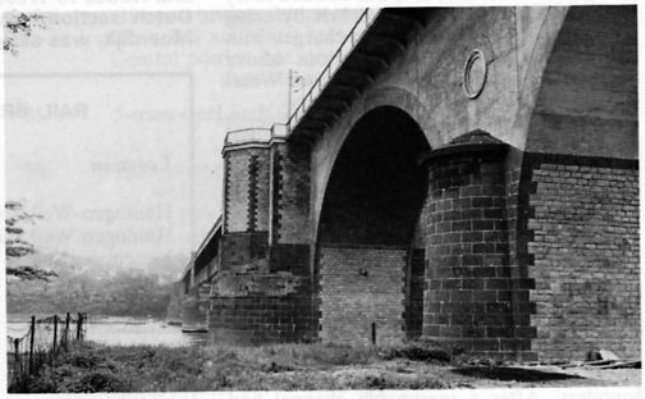
This was a hinged arch type of bridge built in 1876-79 with an overtrack supported on two arches with three river piers. It was a double-track bridge, 380 metres long, with an overall width of 9.4 metres including a footway of 1.3 metres. The total weight of the steelwork was 1,200 tons. The bridge had been deliberately demolished by blowing both arches in mid-span.

Clearance work began on June 23, 1945 using depth-charges and, after a month's work, a 150-ton crane was used which enabled a channel to be cleared for barge traffic by August 1. The full navigable channel was finally ready by August 30.

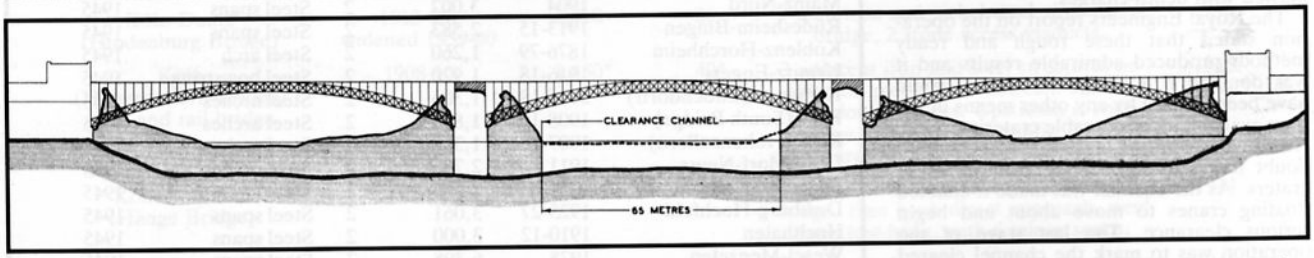


Naval depth charges were the main 'tool' used to clear the river.





The railway bridge at Horchheim has today lost its castle-like towers, but the repair work to the blown arches, possibly caused by earlier bombing, can still be detected. A post-war road bridge now runs close to its southern side.

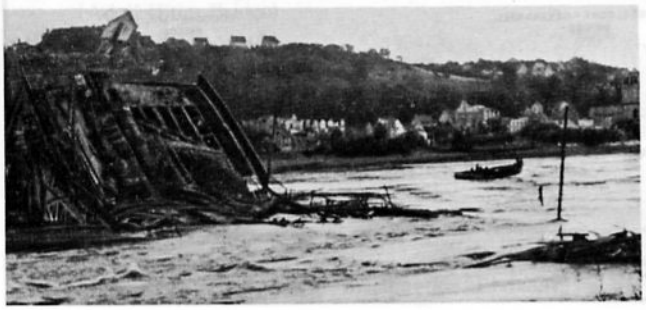


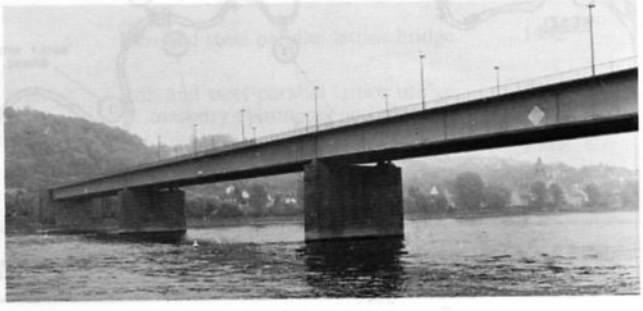
2. KOBLENZ-PFAFFENDORF ROAD BRIDGE

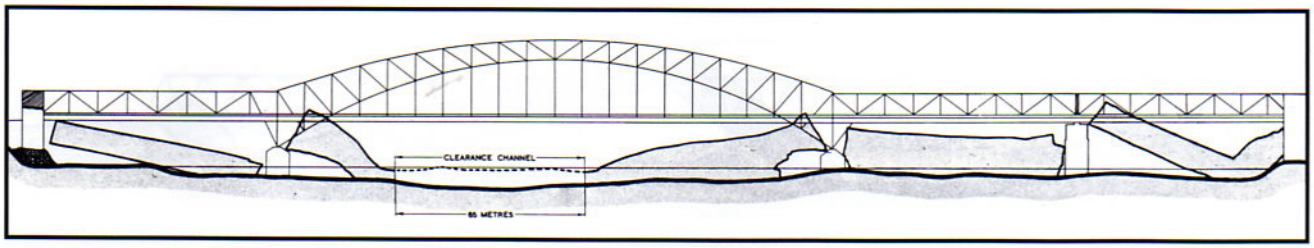
The Pfaffendorf road bridge was originally built from 1862-64 and it was later reconstructed during the years 1933-35. It was a two-pinned arch type of bridge (weight of steel, 8,390 tons) with an overtrack supported on three arches with two river piers. The abutments were masonry with one arch in the western bank approach viaduct. The carriageway was 12 metres wide with two 2-metre footpaths.

All three spans had been blown blocking the river completely. Clearance work started on July 4 and the 150-ton crane was moved to the site after it was no longer required at Horchheim. A channel for barges was cleared by August 1, the final depth and width being obtained by September 1.

The Pfaffendorf bridge, demolished on March 7, 1945, had been replaced by a semi-permanent Bailey constructed by French engineers some 20 metres upstream by July 1946. A new concrete bridge spanning the original abutments was begun in 1950.







3. URMITZ-ENGERS RAILWAY BRIDGE

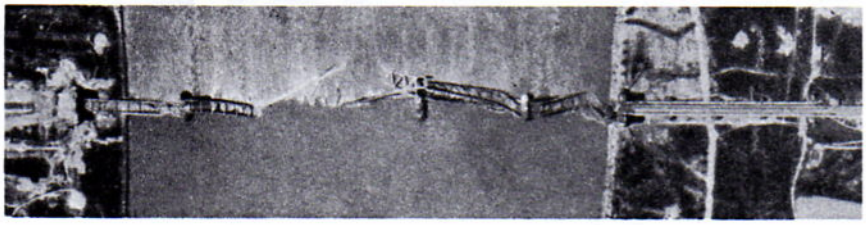
The Kronprinz Wilhelm Brücke, a bowstring, lattice arch with two lattice-girder approach spans, having a total length of 518 metres, was built as a strategic supplies bridge during the First World War and looked very similar in appearance to the bridge at Remagen. The double track was supported on the bottom chord of the lattice girders by tie-rods from the main arch with three river piers and two abutments with an approach viaduct on the east bank of four masonry arches.

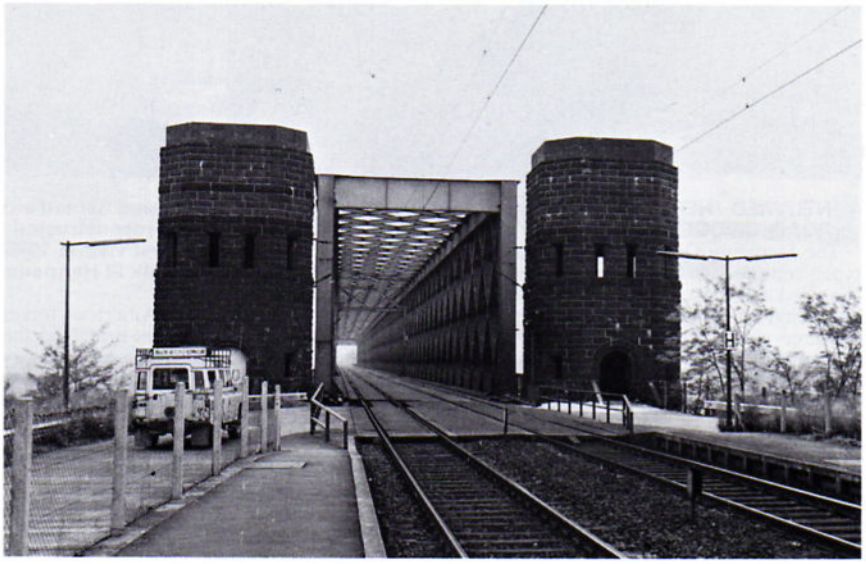
As aerial reconnaissance confirmed that no bridges remained intact over the Rhine in the US Third Army sector on March 7, the 4th Armored Division halted just under cover of the reverse slope of the last high ground short of the river at Urmitz. Because of haze, the actual bridge was not visible but the suspicions of the Americans were aroused when they saw that Germans were still retreating towards the bridge area. Reports from civilians were contradictory, some saying the bridge had been destroyed and others that it had not. Combat Command A made ready for an attack before daylight on the 9th but then General Bradley ordered the Third Army to turn southward across the Moselle. Unaware that the bridge was no longer an American objective, German Pionierkommando blew it shortly after daybreak using a cutting charge a third of the way along the main span and the three lattice spans were also dropped.

Royal Engineers Port Construction Units of 21 Army Group began clearance work on June 25 and a channel was opened to traffic by September 1.

In 1947, work began to build a new box-girder bridge which was opened in 1954, firstly as a single and later with a double-track railway. However the twin-towers at each end were retained bearing a marked similarity to those downstream at Remagen.

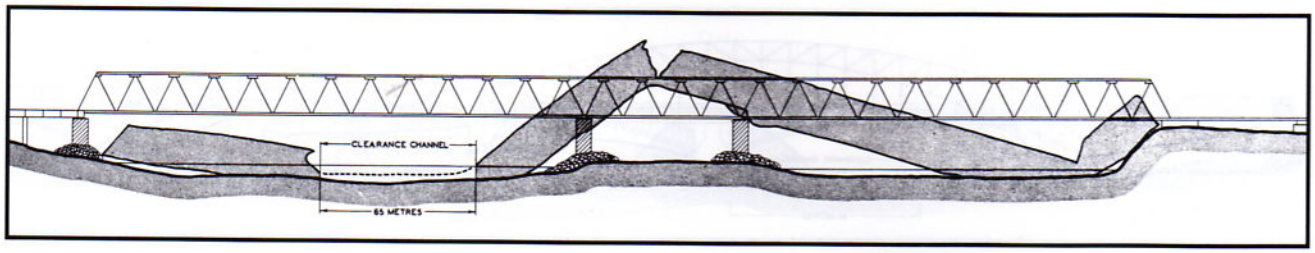
German pioneers blew the railway bridge spanning the river between Urmitz, on the left or western bank, and Engers to the east on March 9, 1945, dropping the whole structure into the river.





With its twin stone towers at either end and lattice arch, the bridge had a marked similarity to the rail bridge at Remagen 30 kilometres downstream. We first visited the bridge back in the mid-1970s — hence our old Land-Rover on the approach road which crosses the track on the western bank.

Whereas most of the post-war bridges over the Rhine have been constructed in concrete, the Urmitz-Engers bridge employs more traditional materials. It is also of considerable historical interest as it came so close to being captured.

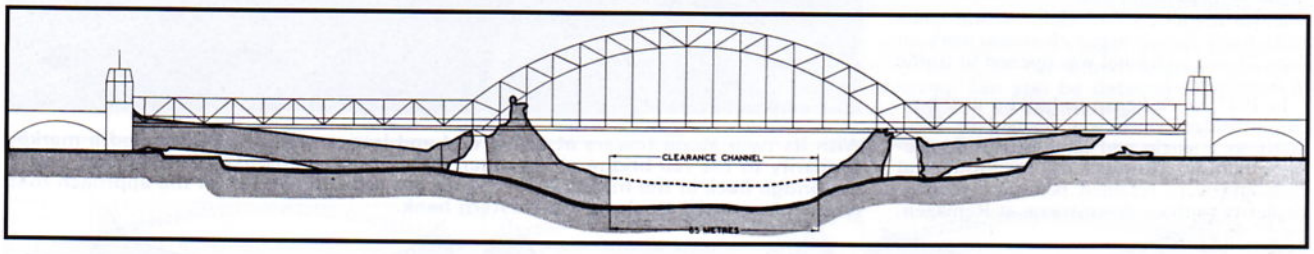


4. NEUWIED 'HERMANN GÖRING' ROAD BRIDGE

The Hermann Göring Brücke, a through-type, continuous, Warren girder bridge at Neuwied was constructed in 1934-35. It had a total length of 995 metres and was supported on three piers, two of which were built on Weissenthurmer Werth Island. It had been destroyed by Allied bombing on January 16, 1945 and clearance work began on June 25, being completed by August 30.

Originally opened in 1935 and named after the Reichsmarschall, by 1951 the Neuwied road bridge had been reconstructed similar to its original appearance *(left). Right:* **Fortuitously, our first visit in 1975 coincided with the commencement of work on the construction of a Mk III Hermann Göring bridge alongside the old.**

In the summer of 1945, American forces constructed a semi-permanent bridge on the site which was destroyed by ice on February 24, 1947. An emergency bridge was constructed by raising parts of the original bridge in the autumn of 1947. On April 3, 1951, the Hermann Göring Bridge was re-opened (although not with that name!) having been rebuilt to its original style. In 1974 plans were made for a new six-lane bridge to replace the existing one only by the autumn of 1978.



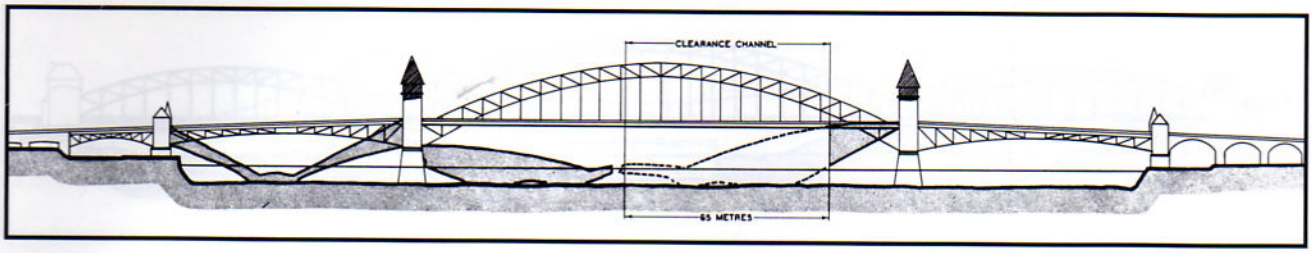
5. LUDENDORFF RAILWAY BRIDGE, REMAGEN

Construction of the bridge was begun in 1916 and it was designed with a central arch 513ft wide, resting on two stone piers joined to the river banks by two lattice box girder sections each 278ft long, the overall length being 1,069ft. When completed in 1918, the bridge catered for twin railway tracks and footpaths.

The Ludendorff bridge was captured intact on March 7 by the US 27th Armored Infantry Battalion and for ten days the Americans pushed men and material across to establish a bridgehead on the eastern bank. On March 12 the bridge was closed for repairs to the half-hearted German attempt at its demolition and, on March 17, without warning, it collapsed into the Rhine.

Clearance work was begun by the Royal Engineers on June 23, 1945 and an initial channel was cleared by August 1, being widened and deepened by August 31.

Weakened by an abortive attempt at demolition, the Ludendorff bridge at Remagen was never rebuilt after it collapsed in March 1945. Here the US Navy ferry a Jeep upriver through the channel cleared by the Royal Engineers.

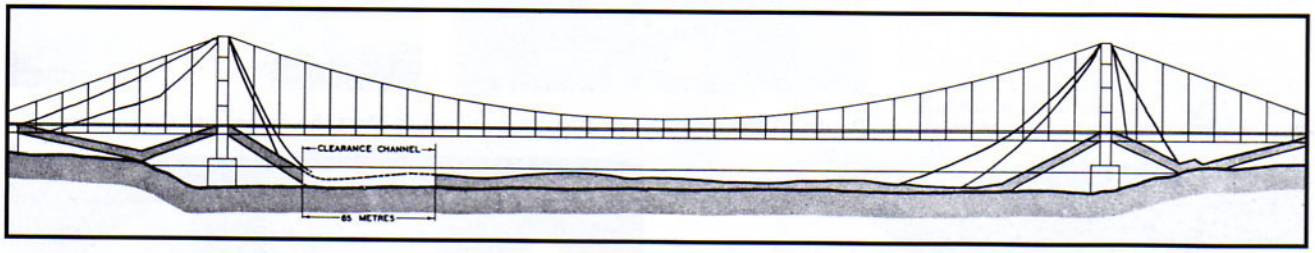


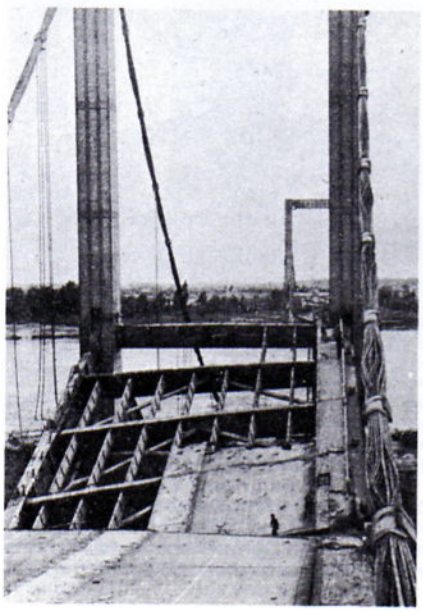
6. BONN-BEUEL ROAD BRIDGE

The road bridge at Bonn-Beuel had been constructed from 1896-98 and was a two-pinned, bowstring arch with a span of 188 metres with two overtrack arches at either end each of 94 metres. On the west bank, there was a smaller, steel lattice arch 32 metres wide while the approach on the eastern bank was over seven masonry arches. Flak positions were installed on the twin-towers at either end. On March 8, as units of the US First Army approached the bridge, the Germans fired the demolition charge at 8.00 p.m. The Royal Engineers found that the main and left-hand approach spans had been blown and, although one arch remained intact, navigation was not possible so close to the edge of the river.

Work began on June 25 to open up a 65-metre gap with depth charges which was completed by the end of August.

In 1939 the roofs to the four towers were removed on Bonn-Beuel road bridge for the installation of Flak. Destroyed on March 8, 1945, the replacement was inaugurated exactly four years later, it subsequently being named the Kennedy Bridge.

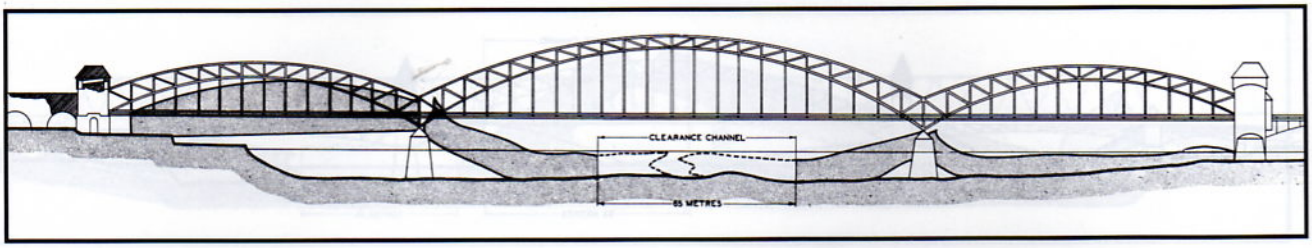




7. KÖLN-RODENKIRCHEN BRIDGE

The autobahn bridge south of Cologne had been constructed from 1941-43 and had a total length of 550 metres. It was a suspension bridge in the classic style with two piers in the river. Its total width, including the double-carriageway, cycle tracks and footpaths, was 27 metres. Although the two towers were still intact, the debris, from the roadway formed a total obstruction to navigation. Work began on July 9 using cutting charges on the suspension cables to clear a passage close by the western bank. Although a small channel had been made by the beginning of August, the required width and depth were not obtained until September 5.

The autobahn bridge at Cologne had been destroyed during an American air raid on January 14, 1945. When work was put in hand for its reconstruction in 1952, the same firm which had supplied the steelwork for the original bridge, August Klönne of Dortmund, was given the new steel contract. The original bridge had cost 13.9 million Reichsmarks (approximately £600,000) and the replacement 17.2 million Deutsche Marks (£1½m).

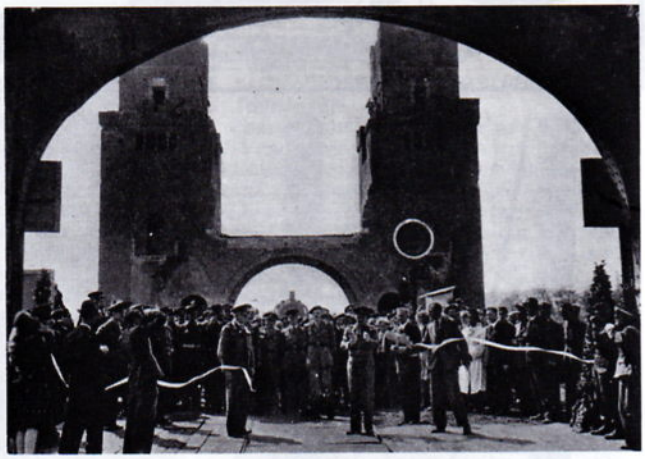


When in December 1944 the Wehrmacht launched its surprise Ardennes offensive, the destruction of the bridges across the Rhine to try to stem the flow of men and materials became top priority for the daylight bombers of the Eighth Air Force. As we have seen, the Cologne autobahn bridge was hit on January 14 — by B-17s of the 1st Air Division — but the first to be brought down was the southern rail bridge on January 6 *(left)*, again by the 1st Air Division's B-17s. (The Mülheim road bridge had already been demolished in October 1944 during the combined RAF-USAAF Operation 'Hurricane'.) *Right:* The bridge after its permanent reconstruction and restoration to the original plans in 1950.

8. KÖLN-SÜD RAILWAY BRIDGE

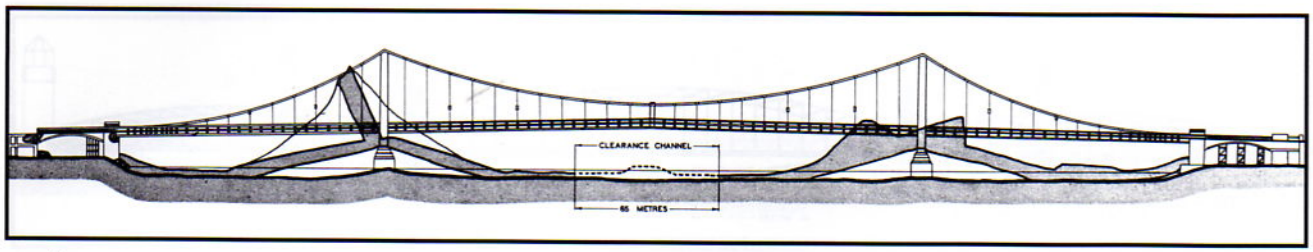
This bridge had been constructed in 1908-10 to the bowstring, lattice-girder pattern with three arches and two river piers. The main span was 165 metres long with the two side spans each of 101 metres. The west bank had two masonry arches in the approach viaduct while that on the eastern side was constructed with three lattice arches with overtrack and one masonry arch. The bridge, 10 metres wide, carried two railway tracks. Bombed in January 1945, two spans had been demolished and the third had dropped off its abutment when one of the masonry arches was hit. Clearance work, which began on July 7, was completed by August 31.

Depth charges were used in great numbers to blast the debris and clear a channel.



As much as the bridges across the Rhine had been vital to the German war machine, so was their speedy replacement equally essential to the occupying forces. In April/May 1945, the US Army built a wooden timber-piled bridge at Cologne which was in use from June 1945 to September 1946. In the meantime, Royal Engineers, assisted by local labour, constructed a 1,480-foot-long Class 40 bridge which was inaugurated on June 12, 1946 and named after the late General George S. Patton who had suffered a fatal motor accident six months previously. Complete with a central navigation span 240 feet wide, it remained in use until November 1951.

Left: **At the same time the Südbrücke was repaired, under the supervision of the Royal Engineers, by the lifting of the two large spans from the river bed and the addition of a new steel centre section. It was reopened to rail traffic on May 3, 1946 and renamed South Bridge by Lieutenant-General G. Thomas, the then-acting C-in-C of BAOR. Although only a single track, it provided communication between the goods marshalling yards on the east and west sides of Cologne, and gave an important link between the Channel ports and Germany for up to 40 trains per day.** *Right:* **General Thomas cuts the tape to let the first train through.**



9. KÖLN-DEUTZ ROAD BRIDGE

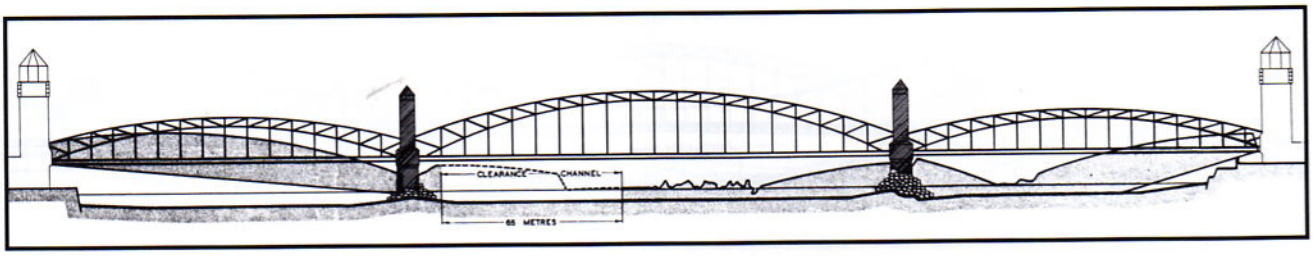
This was a suspension bridge with stiffened, deck-girders which had been constructed from 1913-15. The total weight of the steelwork was 8,390 tons spaced regularly. The bridge had a centre span of 178 metres, two side spans of 81 metres each and two stone approach viaducts each with an arch of 24 metres. The 11.2-metre carriageway also carried two tram tracks and two 3.5-metre footpaths.

Because of the close proximity of the construction work proceeding apace on the American timber-piled, semi-permanent bridge, clearance work by the Royal Engineers could not begin until July 12. It could then only proceed at certain times of the day when the nearby bridge was closed to traffic. Although there was a navigable channel by the end of August, full clearance was not completed until November 19.

Opened in July 1915 as the Hindenburgbrücke, the road bridge across the river at Deutz was a crucial artery in the centre of Cologne. However, air attacks had weakened the structure and it collapsed during repair work on February 28, 1945. Its new replacement was opened on October 16, 1948.

The new bridge was built by a consortium of local firms under the German architect, Dr.Ing. E. h. Gerd Lohmer of Cologne. Because its construction period spanned the currency reform in the western zone which took place in June 1948, its final cost was stated as 5.75 million RM plus 2.4 million DM!

The oldest bridge across the Rhine in Cologne was built by the Romans in 310, but the first in modern times was the Dombrücke, opened in 1859. This was dismantled in 1910 when it was replaced by the famous Hohenzollernbrücke built between 1907-11. This was a combined road-rail bridge flanked by twin towers at either end and lay just to the east of the cathedral. It was blown on March 6, 1945 as tanks of the US 3rd Armored entered the city. In this view taken looking south, the three bridges are the Hohenzollern, the Deutz road bridge, with the southern rail bridge in the distance.



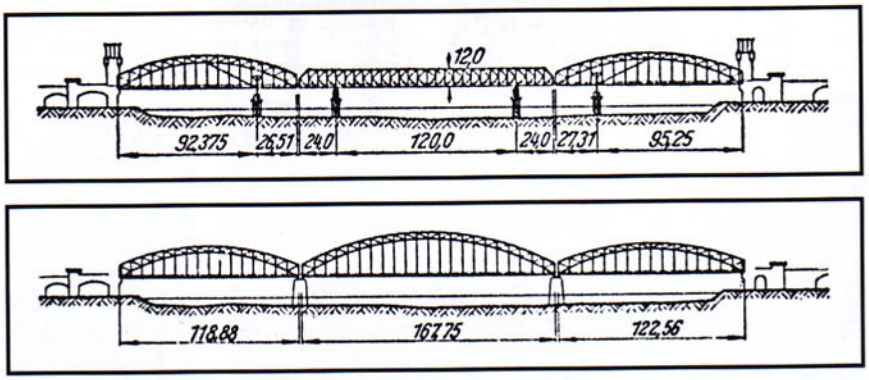
10. KÖLN-HOHENZOLLERN ROAD AND RAILWAY BRIDGE

The Hohenzollernbrücke has a special interest for historians as it was over this bridge that the German Army marched into the demilitarised zone of the Rhineland at dawn on March 7, 1936 (*see After the Battle No. 58*). For seventeen years German armed forces had not set foot in this part of Germany under the provisions of the Treaty of Versailles.

The bridge was, actually, three separate bridges — two for rail and one for road traffic. Each bridge consisted of three, unequal lattice bowstring spans linked to the next bridge at the top chords. Each twin track railway bridge was 8.5 metres wide whilst the road bridge was 15.9 metres.

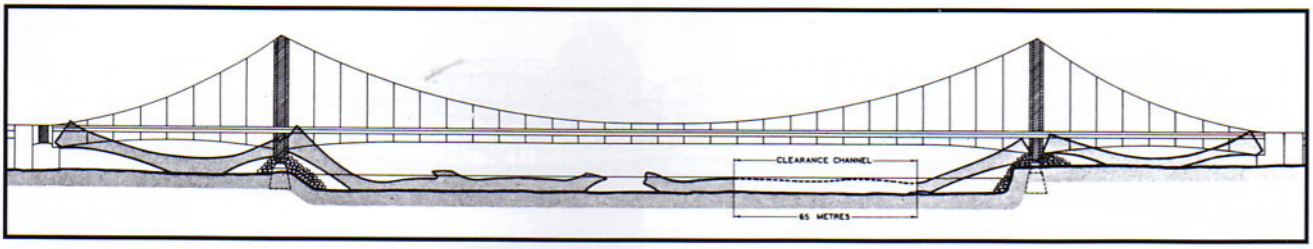
The three bridges had been completely demolished by the combined effects of Allied bombing and German demolition. Although a possible clear channel existed under the westernmost span which had dropped from its abutment at one end, it was decided not to use it because of the danger of the other end coming off. The massive bridges weighed 16,000 tons and when the Royal Engineers began clearance work on June 23 it was soon realised that the task would not be easy. Depth-charges and cutting charges were used in great numbers but clearance was not completed until the end of October. Some craft that had attempted to pass earlier, only to become holed on submerged steelwork, also had to be destroyed by demolition charges and, inevitably, because of the amount of explosive used, further damage was caused to the surrounding buildings, already in a bad state due to bombing.

Above: **The RE's profile shows the demolished road bridge. The Hohenzollern was reconstructed in two stages.** *Below:* **First the end spans were lifted and the centre one replaced with a 168-metre temporary section which was completed by May 1948.**



Permanent repairs involved the removal of the stone towers and road bridge section, leaving just the twin four-track rail bridge. Work commenced in 1957 and took two years. The loss of the road crossing was mitigated by the addition of the brand new Severinsbrücke, opened in 1959 south of the Deutz bridge.

Left: in this picture, the Patton Bridge in the foreground can be seen nearing completion. Although it was hoped that the General's widow would be able to be present at the unveiling, she was unable to attend and the dedication was carried out by General J. T. McNarney, the American CG of US forces in the European Theater. Beyond the Hohenzollern, now partially cleared with its navigable channel, can be seen the American bridge built alongside the Deutz. *Right:* **Sergeant Adams photographed the US Guard of Honor crossing the bridge which had been built by 1,000 sappers assisted by 1,000 Germans.**



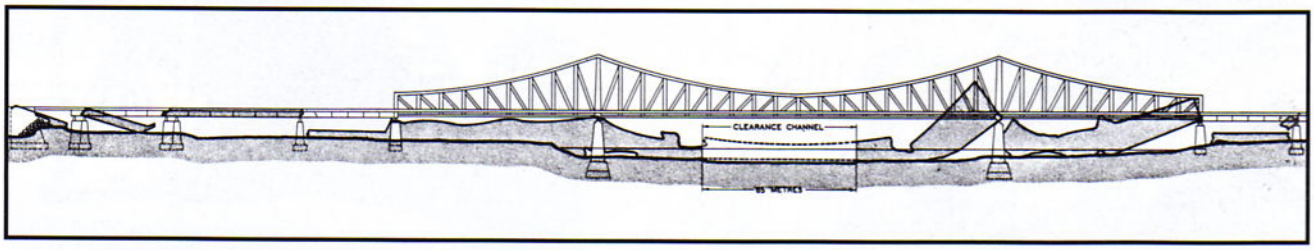
11. KÖLN-MÜLHEIM ROAD BRIDGE

The Mülheim bridge (also known as the Hänge Bridge) was an 11,500-ton steel suspension bridge 707 metres long and had been constructed from 1927-29. The main span was 315 metres long with two end spans each of 91 metres. In addition to the roadway, the bridge had double tram and cycle tracks and two footpaths.

As the Allies approached the Rhine, it was normal German procedure for explosives and igniters to be installed in advance, ready to blow a bridge without delay. At Mülheim, charges had already been placed in October 1944 when a lucky American bomb hit one of the demolition chambers on the bridge causing its premature collapse, much to Hitler's annoyance. The Führer initiated court-martial proceedings against those 'responsible' (surely not the Americans!) and henceforth issued an order delaying the placing of explosives until the last moment; a decision which turned out to be decisive in the capture of the Ludendorff bridge.

When the Royal Engineers surveyed the bridge, they found it had been totally demolished including the eastern abutment. They began clearing the debris on June 28 and had completed a navigable channel by September 14.

Left: **Both the US Eighth Air Force and RAF Mosquitos made attacks on Cologne on October 14, 1944 but it was believed that it was an American bomb which chanced to initiate the premature demise of the Mülheim bridge by setting off German demolition charges already in position. (IWM)** *Right:* **Its replacement was begun in 1949 and completed by September 1951.**



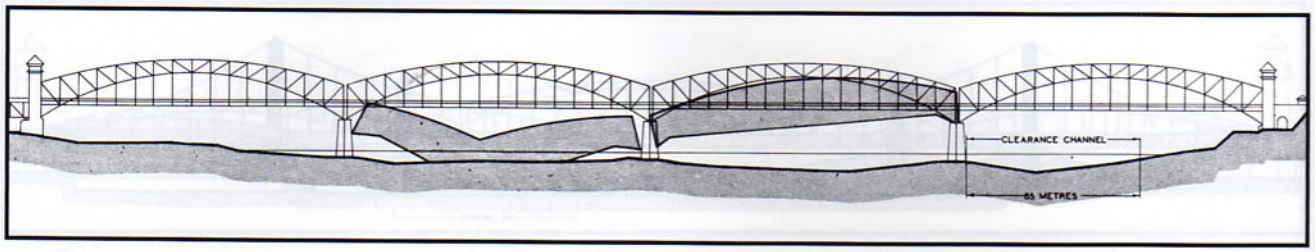
12. NEUSS-HAMM ROAD BRIDGE

The road bridge across the Rhine, joining Neuss with the Düsseldorf suburb of Hamm had been constructed in 1927-29. It was a double cantilever steel-truss with a centre span of 206 metres and two side spans each of 103 metres. Including the approach viaducts on each bank, consisting of four plate-girder spans, the bride was 780 metres long.

On March 1, 1945, Major General Raymond S. McLain, commanding the US XIX Corps, gave the 83rd Division the task of capturing Neuss and attempting to capture intact the two rail and two road bridges beyond the town. Although the 83rd attacked with two regiments throughout the night of March 1-2 and cleared Neuss, the troops found three of the four bridges destroyed. One of these was the road bridge on which the cantilever spans and four of the flood spans had been blown.

The Royal Engineers began clearance work on May 31 and, by July 9, a rough channel had been cleared. Shortage of explosives held up completion of the navigable channel to the full depth and width until September 21.

Although referred to as the Neuss-Hamm road bridge by the Royal Engineers, this is what the Germans call the Düsseldorfer Südbrucke — rebuilt by 1951.

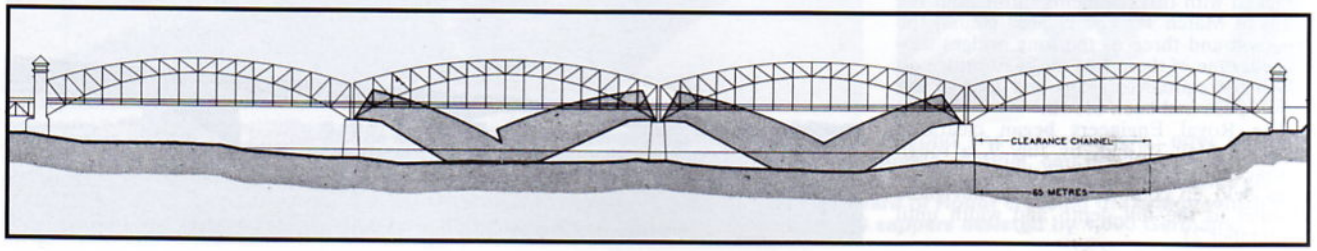


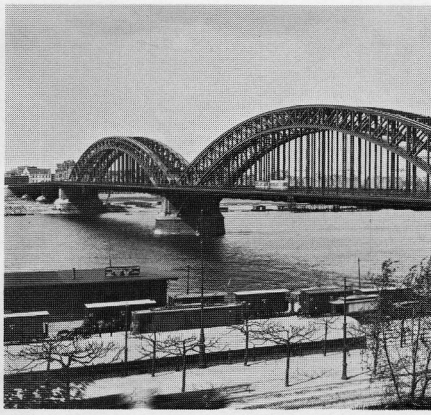
13. DÜSSELDORF-NEUSS RAILWAY BRIDGES

The other two demolished railway bridges reached by the 83rd Division were, in fact, only fifty metres apart. Each bridge carried a double track, one being used for goods traffic and the other for passenger trains. The bridges were both identical, each having four bowstring arches of 107 metres span supported on three river piers. As it was the centre span of both bridges which had been blown, this left unobstructed navigable channels under the side spans. However, in order to relieve the obstruction to the flow of the river, the eastern demolished span of the goods bridge was cleared, great care being taken so that the piers were not damaged as it was planned to use them later for a replacement bridge.

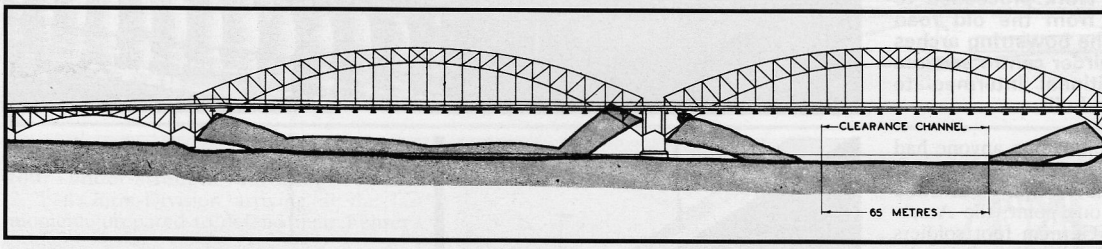
Right: **The twin rail bridges demolished at Neuss, as depicted in 1945 by Royal Engineers artist, Lance Corporal J. Hindle. The elevations show** *(top)* **the passenger bridge and** *(bottom)* **the goods bridge just 50 metres to the north.**

The goods bridge was repaired and formally opened by Mr J. B. Hynd, MP, the Chancellor of the Duchy of Lancaster, on August 10, 1946. When we first visited the site in 1975, readers can imagine our excitement to find that a short section of steelwork of the former König-Wilhelm-Brücke still remained sitting on the old abutments.





The Oberkassel bridge has a fascinating history. *Left:* **Built in 1896-98 with ornamental gateways at either end, these were removed in 1925-26** *(right)*. **At the same time demolition chambers were excavated in the river piers on the orders of the French Occupation commander, General Then on May 31, 1934, it was renamed the commemoration of the naval battle of May was blown on March 3, 1945.**



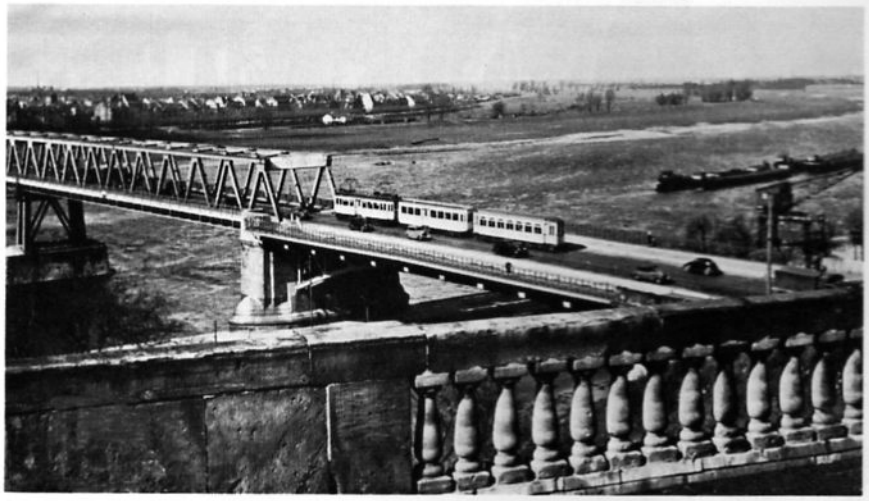
14. DÜSSELDORF-OBERKASSEL ROAD BRIDGE

The Oberkassel bridge was constructed in 1896-98 and later altered in 1925-26. It was a twin, bowstring arch with the two arches supported on a central pier. There were three lattice steel approach spans on each bank with overtrack.

This was the fourth bridge on General McLain's list and one which came close to becoming another Remagen although the capture of the latter was still a week in the future.

General McLain decided to try to take the Oberkassel bridge by subterfuge. On the night of March 2, a task force was organised comprising parts of t lion and the 643rd Tar with riflemen from th men were dressed in the tanks and vehicle macht transport. Ger were put up front through.

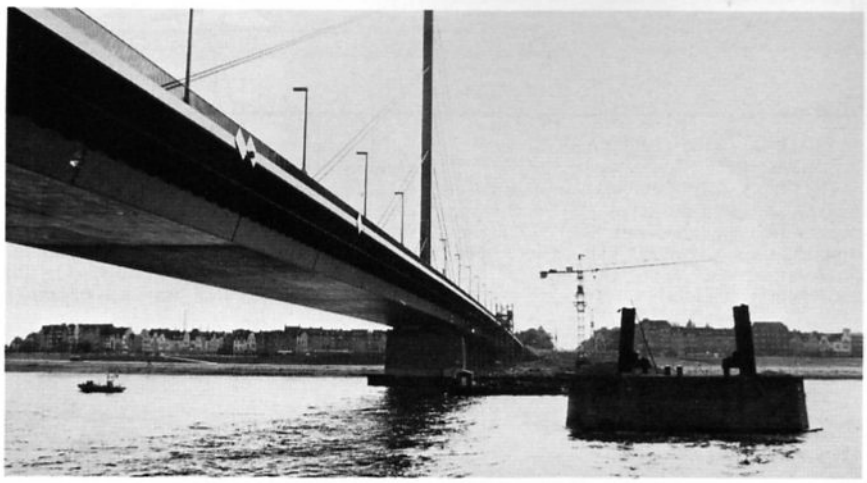
Immediately the war ended, work began on a Class 40 semi-permanent floating Bailey bridge 400 metres d



Above: **Over 2,000 feet long, the high-level Bailey ran from Hohenstraufen-strasse on the west bank to the junction on the Admiral Scheer Ufer (now Hofgar-tenufer) in the east. It was opened for traffic on October 3, 1945 and was named Freeman Bridge in honour of its designer, Major Ralph Freeman, who was about to return to his bridge-building company, Freeman, Fox and Partners, having been seconded to 21 Army Group as bridging adviser. Major Freeman had warned in his maintenance instructions that the bridge was not designed to withstand severe icing, and it was subsequently destroyed during the severe conditions in the winter of 1947.** *Right:* **Meanwhile from 1946 to 1948 work proceeded to remove the debris from the old road bridge and replace the bowstring arches with a new lattice girder centre section. For this, two additional intermediate abutments had to be built.**

The ruse worked better than anyone had hoped. The column passed through the German lines and successfully outwitted German sentries. At one point, the Americans actually passed German foot soldiers moving in the opposite direction down the other side of the road. As dawn broke, the column was passing through the outskirts of Oberkassel but then their luck gave out. A German motor cyclist challenged the Americans and, not believing the answer he was given, turned his machine towards the bridge. The Americans tried vainly to bring the motor cyclist down with gunfire but only succeeded in raising the alarm still further. Although the Americans were strong enough to fight their way forward, the town's air raid warden, aroused by the firing, set off the warning siren. Undaunted, the task force pushed on, some tanks actually reaching the western end of the bridge, whereupon the Germans fired the demolition charges in the faces of the Americans.

Royal Engineers found that the two main spans had been demolished by cutting the main arches at the third points although both approaches were undamaged. Clearance work began on June 2 and was completed by September 28 although a navigable channel had been formed by July 28.



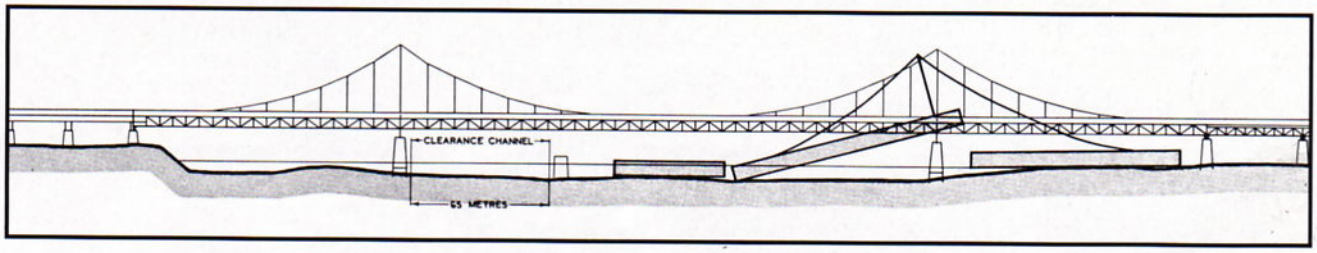
In 1969 work began on a brand new steel-braced bridge adjacent to the Skagerrak Bridge. We were fortunate to visit the site just as work was nearing completion — well, almost. The new bridge was built on a line just 47.5 metres upstream and had already been open to traffic for three years. Then, soon after this picture was taken in 1976, on April 7 it was briefly closed while engineers from Hein Lehmann A.G. bodily moved the whole bridge onto the line of the original bridge. This remarkable feat was accomplished in just two days using compressed air.

The Adolf Hitler Bridge in Krefeld. It was rebuilt in 1949-50 the same as it was when inaugurated by the Führer in 1936.

15. KREFELD-UERDINGEN 'ADOLF HITLER' ROAD BRIDGE

The Adolf Hitler Brücke at Krefeld had been constructed in 1933-36 and was a suspension type with lattice-stiffened girders supported on two piers in the river. The bridge was 14 metres wide and had approach viaducts of plate girder.

The bridge lay in the zone of the XIII Corps but, when the XIX Corps 2nd Armored Division made a spectacular advance across the Nord Canal on March 1, this enabled them to reach the outskirts of Krefeld by nightfall. In the absence of Lieutenant General Simpson, Ninth Army commander, from his HQ at the critical time, his G-3, Colonel Armistead D. Mead, immediately made the decision to extend General McLain's XIX Corps boundary to enable the 2nd Armored attack to continue its impetus. (The boundary between XIII and XIX Corps ran through Uerdingen, just short of the bridge.)

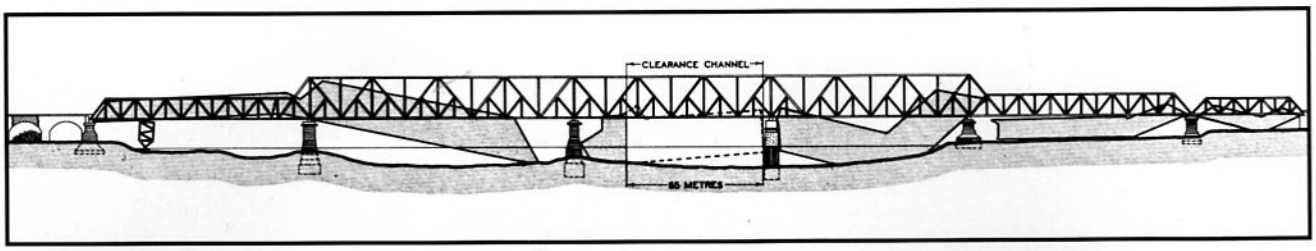


At the Adolf Hitler bridge itself, three or four under-strength battalions of the 2. Fallschirm-Division arriving at the last moment, prepared to defend their Führer's bridge.

In the hope of preventing the Germans from demolishing the bridge, the Americans kept up a continuous, harassing artillery barrage for fifteen hours using proximity-fused shells.

When the 2nd Armored attack began at 2.00 a.m. on March 3, four tanks at the head of the column were quickly knocked-out blocking the road. By the time the tanks could attack again it was early afternoon and, although some reached the bridge approach, the advance ground to a halt under heavy mortar and Panzerfaust fire. A 13ft crater in the road at the western end of the bridge barred the way to the tanks and the supporting 379th Infantry could not advance against the small-arms fire from the German paratroopers.

After dark, an American six-man engineer patrol led by Captain George L. Youngblood slipped past the defenders and managed to cross the bridge cutting as many wires as were visible on the way. Although the patrol went right across the bridge before returning, the gallant effort to save the bridge failed. Either the engineers missed some critical wires or the Germans managed to repair those cut during the night. At 7.00 a.m., before a new attack could begin, the Germans blew the bridge. The charges completely cut the bridge in the centre, dropping the eastern half, which had been cut in two places, into the river. However, as this still left half the width of the Rhine unobstructed for river traffic, in this case no clearance work was necessary.



Both the road *(bottom)* and rail bridges *(above)* at Hochfeld were demolished on March 4 as American forces approached Duisburg. The rail bridge, 940 metres long, was completely dropped into the river and by the time the Royal Engineers came on the scene, American engineers had already constructed a semi-permanent railway bridge just upstream.

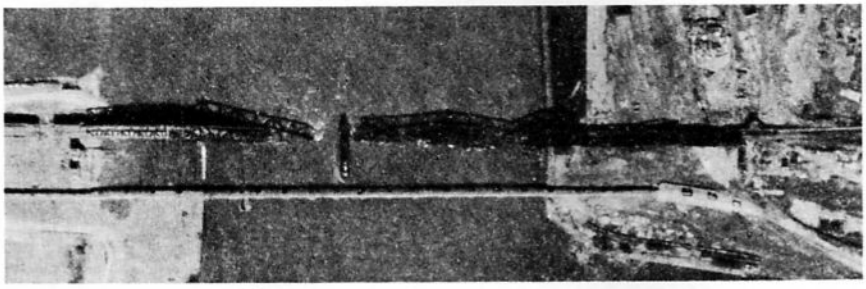
16. DUISBURG-HOCHFELD RAILWAY BRIDGE

The Hochfeld railway bridge, constructed in 1871-73, had already been demolished once by choice in 1925, to be reconstructed over the next two years. The new bridge was a double, cantilever, through-type Baltimore Truss bridge weighing 8,400 tons supported on five river piers. The five spans were all of unequal length and there were nineteen masonry arches on the western approach. The bridge had been demolished just as a loaded coal train was crossing and the Germans had made attempts to lift the western approach span using a temporary trestle.

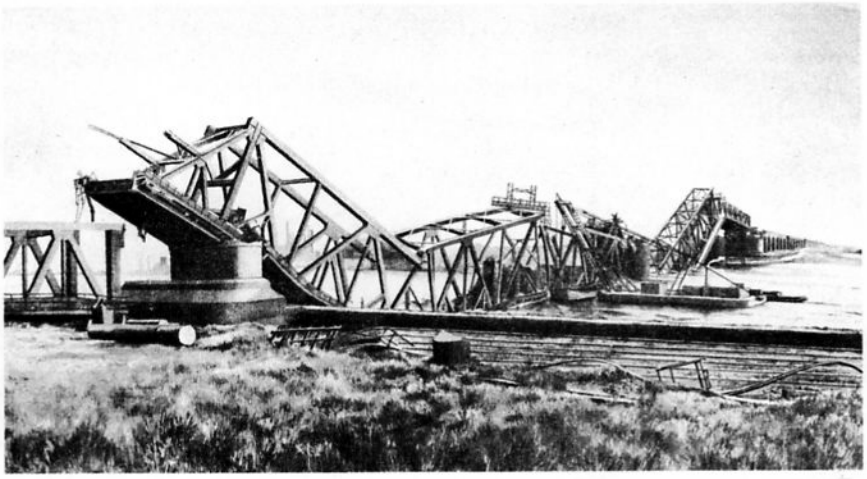
General McLain was still trying to find a bridge intact and, after the débâcle at Neuss and Krefeld, he ordered the 95th Infantry Division to drive north for the bridges in the Rheinhausen area. Resistance was unusually light and, on the morning of March 5, pilots of artillery observation aircraft confirmed what was already suspected — both bridges at Rheinhausen had already been blown. By mid-afternoon, General McLain's XIX Corps had completed its role in reaching the Rhine but had failed to capture a bridge intact.

Clearance work on the Hochfeld bridge was complicated because of a semi-permanent railway bridge constructed by American engineers just 200ft upstream. It was therefore thought inadvisable to use depth-charges but to use oxy-acetylene cutting torches instead. Meanwhile, a 180-ton floating crane had been repaired and put into operation.

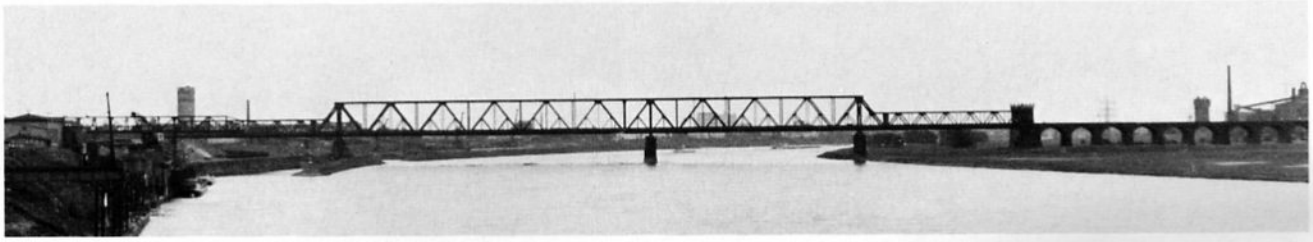
Work began on August 26, all steelwork above water being removed by the crane. The main lower chord members were then cut by explosives and the deck was allowed to fall in the river. A few stub ends had to be removed by depth-charges but this was done carefully without any damage to the American rail bridge and the channel was finally clear by October 5.



The 2,815-foot American bridge (named Victory Bridge — see page 31) was built in May 1945 in the record time of 6 days, 15 hours, 20 minutes.

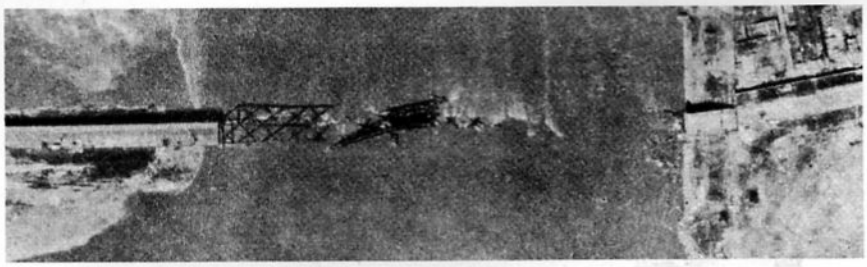


Originally constructed in the 1870s, the railway bridge at Hochfeld (which the Germans refer to as the Eisenbahnbrücke Duisberg-Rheinhausen) was reconstructed in 1927. *Above:* Lance Corporal Hindle's illustration shows the German 180-ton floating crane at work in 1945. A loaded coal train, which had gone down with the bridge, added to the difficulty of clearance. *Below:* It had been repaired to the pre-war design by 1949.

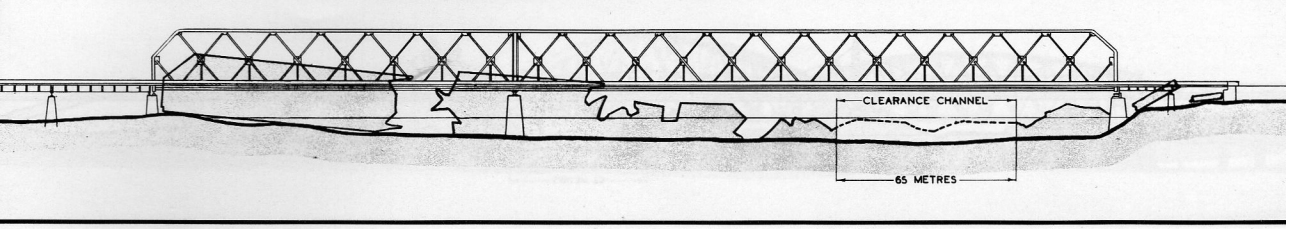


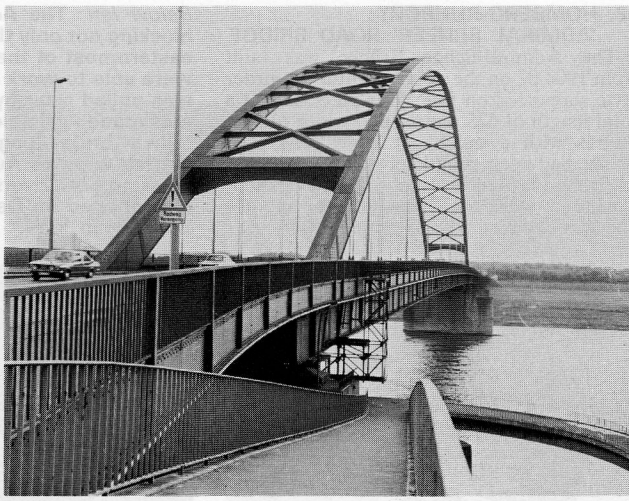
17. DUISBURG-HOCHFELD 'ADMIRAL GRAF VON SPEE' ROAD BRIDGE

This bridge was a 760-metre, continuous, steel lattice girder type which had been constructed in 1934-36. There were two spans, one of 151 metres and the other of 255 metres, resting on a single river pier. The approach on the western bank was constructed of seven plate-girder sections. The 19.2-metre-wide bridge comprised double carriageway, cycle, tram-tracks and footpaths. Clearance began on June 3, 1945 with the channel being cleared by July 12 although work carried on until August 24 to reduce the velocity of the current.



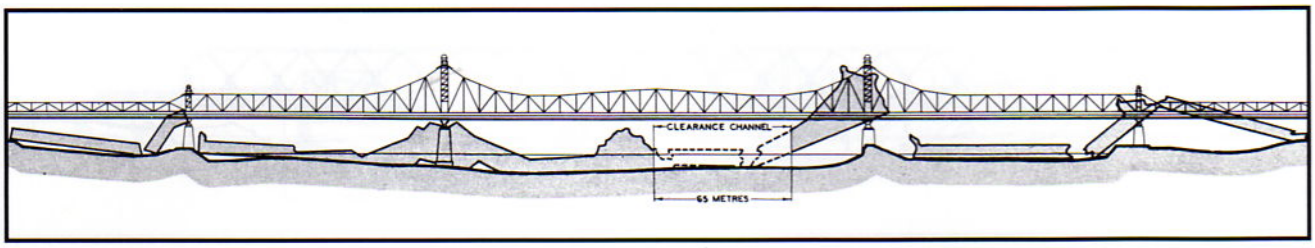
The Admiral Graf von Spee road bridge, opened on May 22, 1936, lay less than 1,000 metres downstream.





The semi-permanent high-level floating and timber-piled bridges were designed to give a clearance of around 8 metres above mean high water, to permit barge traffic unrestricted use of the river, so it was unusual to find a low-level type of floating bridge still in use as late as November 1945. *Left:* This one was located just downstream from the ruined Hochfeld Road bridge seen in the background. It was a standard type of Bailey pontoon bridge, 1,490 feet long, bu with the difference that 180 feet of the centre section coul be swung out of the way. (IWM) *Right:* A completely new bowstring bridge was built from 1948-50 to replace th former Admiral-Graf-von-Spee-Brücke.

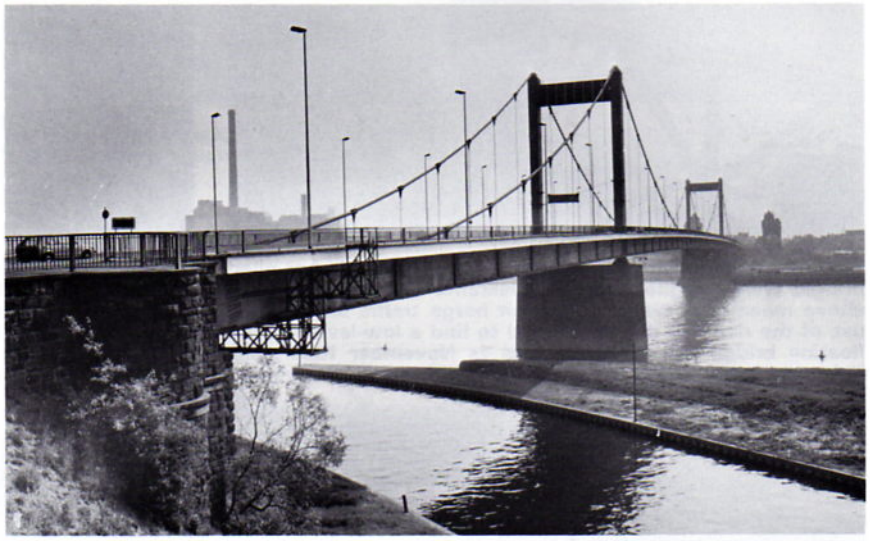
Sergeant Bill Augustine took this grimy picture on March 19, 1945 from an artillery observation aircraft spotting for the US 75th Infantry Division. The view is east from Homberg (captured March 5) looking towards Duisburg on the far bank, still or northern entrance to the River Ruhr. When the pincers around the Ruhr Pocket snapped shut on April 1, the River Ruh became the dividing line between the US First and Ninth Armies, leaving the latter the task of capturing all the heavily

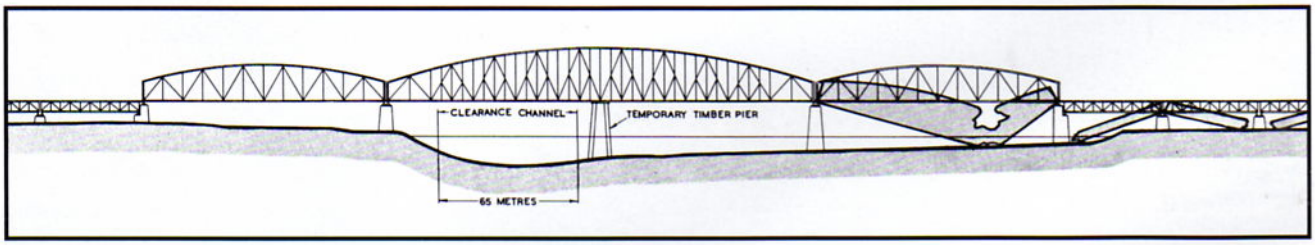


18. HOMBERG-RUHRORT 'ADMIRAL SCHEER' ROAD BRIDGE

The Admiral-Scheer-Brücke was built from 1904-07 on the double cantilever girder style supported on four river piers. It had a total length of 625 metres and width of 16.5 metres with a weight of 5,600 tons. The bridge had been completely demolished and so formed a total obstruction to navigation. Clearance work took exactly three months and was completed on August 1, 1945.

Below left: **The Admiral Scheer Bridge had been blown on March 4 completely blocking not only the Rhine but the Ruhr in the foreground which was spanned by the easternmost of the two single cantilever girders. As the current was gentle, divers were able to work in comfort at this end and, after using cutting charges, the debris was pulled clear by bulldozers. The floating crane which had been found at Ruhrort was made available from August 20-24 before it moved on to work on the Hochfeld railway bridge (page 28). A navigation channel on the Rhine itself had been blasted 65 metres wide by August 1.** *Below right:* **A new suspension bridge was constructed crossing both rivers from 1951-54, being renamed the Friedrich-Elbert-Brücke when it was opened on December 18, 1954 in honour of the first president of the Weimar Republic in 1919.**



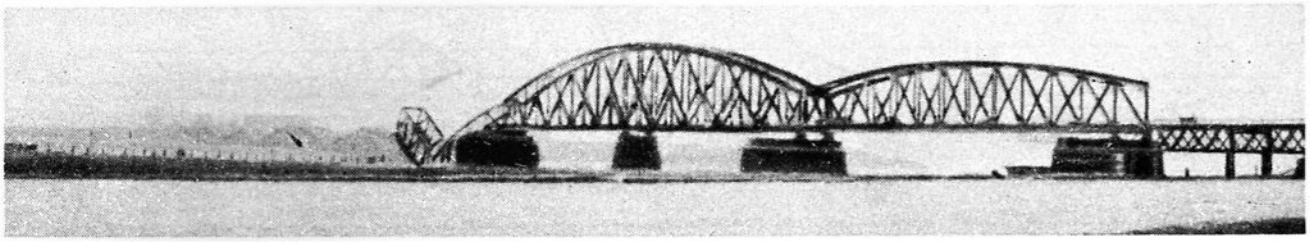


19. HOCHHALEN RAILWAY BRIDGE

This was a lattice girder bridge with three, through-type, semi-parabolic spans resting on two piers in the river. However, the Germans had strengthened the bridge under the centre span by the addition of a temporary, piled, support pier. Three lattice girder spans on the west bank and one on the east bank formed the bridge approaches. Being a rail bridge, double-tracked, it was fairly narrow at 7.60 metres.

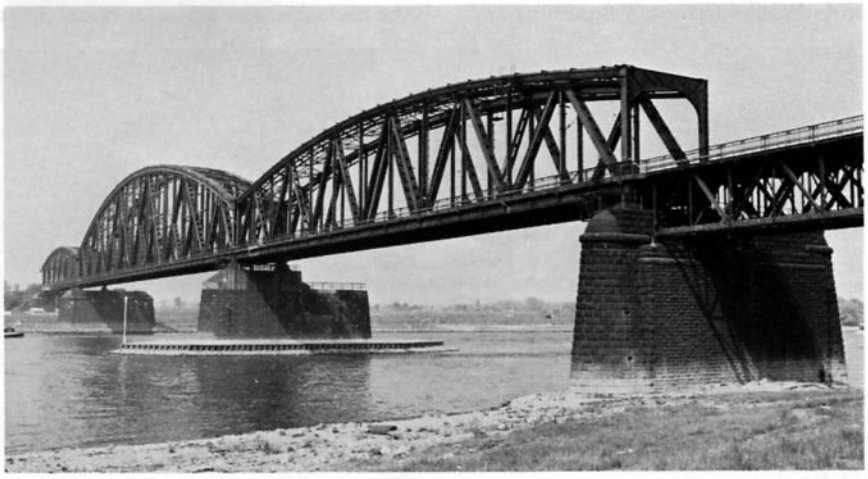
Only the right-hand main span over the river had been demolished and as soundings showed that a clear channel existed on either side of the temporary pier, no clearance work was necessary.

Tech/Sergeant Robert Carpenter of Company G, 335th Infantry Regiment, only recently returned to his unit from hospital where he was treated for a leg wound, examines the far bank of the Rhine for any signs of enemy movement on March 9, 1945. Behind him is the Hochhalen railway bridge (miss-spelt by the REs as Hochalen but referred to by the Germans as the Beeckerwerth-Baerl Haus-Knipp-Brücke).

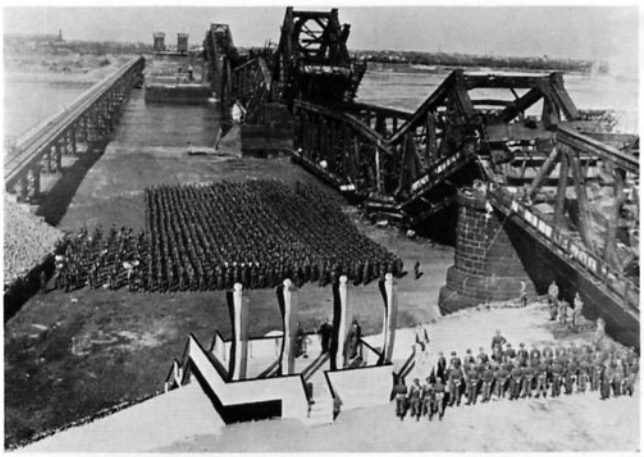


As only the right-hand span had been demolished, no clearance work was necessary. Pfc Robert Davis stands north of the bridge, unfortunately obscuring the damaged span.

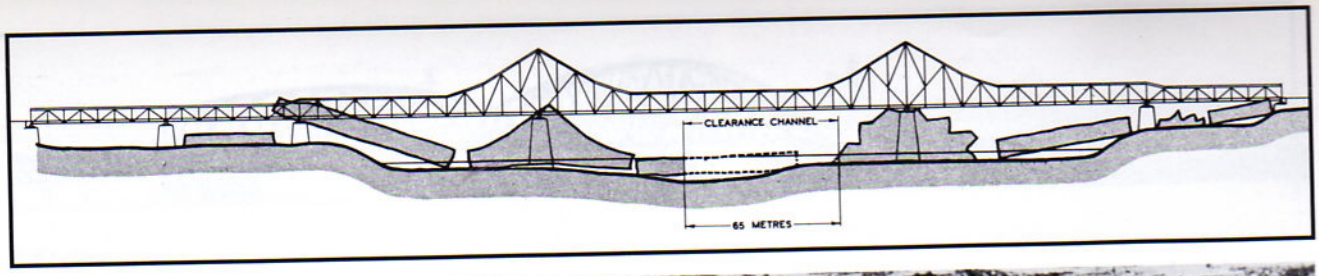
New trees make it even more difficult to see the Rhine from this spot today. We took our comparison early morning — hence we are looking almost directly into the sun.



Left: Hochhalen was the earliest rail bridge to be brought back into operation in the region — single line working being introduced on February 26, 1946. *Right:* The bridge has a special majesty all of its own in addition to its historical rôle.



With all rail bridges across the Rhine destroyed, the provision of semi-permanent replacements was paramount. On March 29 work began 30 kilometres downstream on the construction of a 1,752-foot single-track, timber-piled bridge at Wesel. Other rail bridges were opened at Mainz on April 14 (*see After the Battle No. 16*), Duisburg on May 8, and Spyck, near the German-Dutch frontier, on May 9. The latter two bridges, for obvious reasons, were both named 'Victory Bridge'. *Left:* The opening of the American-constructed bridge at Duisburg and *right* the one built by HQ 5 Port Construction and Repair Group at Spyck. Both Victory Bridges remained in use until the original rail bridges in Düsseldorf and Cologne were re-opened in mid-1946.



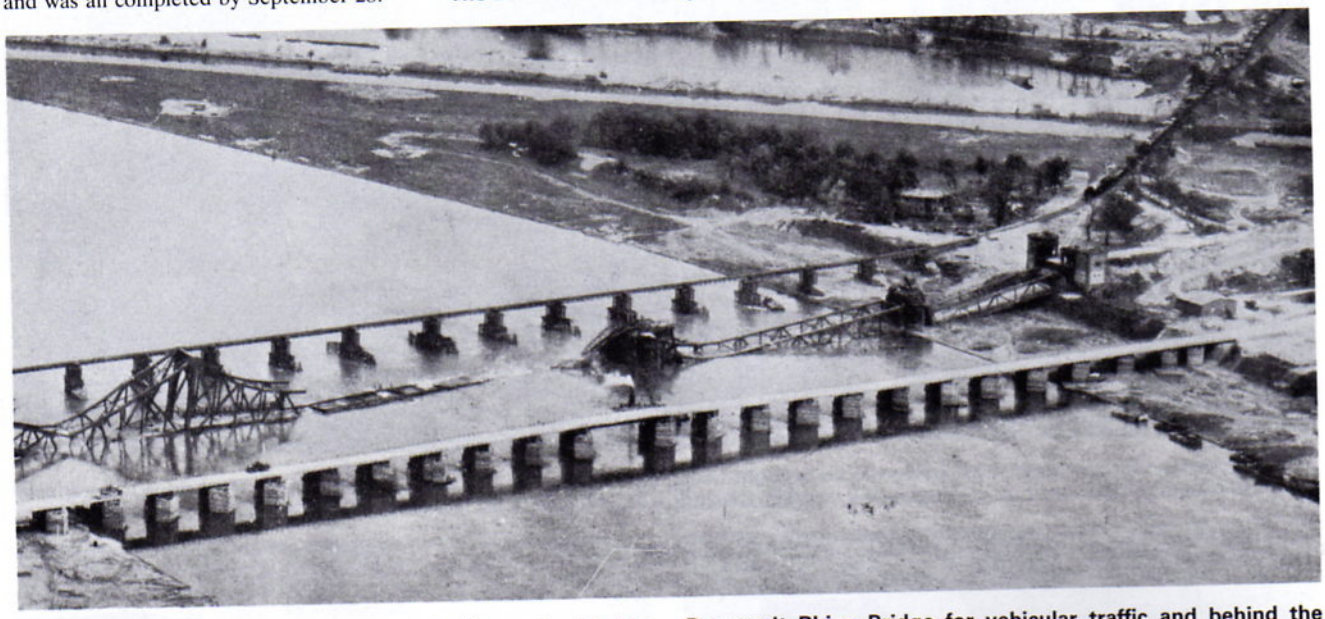
20. BÜDERICH ROAD BRIDGE

This was a cantilever, steel lattice girder bridge 520 metres long by 13.5 metres wide supported by five river piers.

The Germans had done a thorough job of demolition on this bridge and all the spans had been blown except two of the 55-metre approach spans on the western side. No doubt they left these intact so that Winston Churchill could use them as a vantage point when he visited the bridge on Sunday, March 25, 1945! *(See After the Battle No. 16.)*

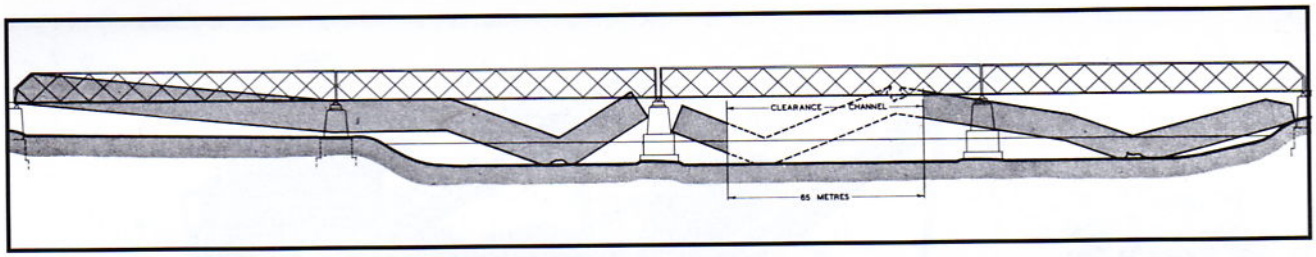
As US engineers had constructed timber-piled bridges close by the demolished bridge, experiments were carried out in advance to determine if the wooden bridges would be damaged by the depth-charge clearance method. Thoughtfully, the Royal Engineers used their own semi-permanent bridge at Spyck for the tests and, when they proved that as many as four charges could be exploded within forty yards without damage, it was decided to use this method of clearance at Büderich. Work started on July 21 and was all completed by September 28.

The Büderich road bridge at Wesel. Beyond is the junction of the River Lippe. (IWM)



By April 18, the demolished road bridge had been straddled by two American timber-piled bridges: in the foreground the Roosevelt Rhine Bridge for vehicular traffic and behind the Rhine Railroad Bridge, opened on April 8.

Left: **The railway bridge was dedicated to the three men who lost their lives during its construction: Major Robert Gouldin, Corporal Anthony Wedge and Private Evandro Contri. The wreckage of the road bridge is visible on the extreme right.**



21. MENZELEN RAILWAY BRIDGE

This was the double-track railway bridge at Wesel, the same one crossed by commando forces during the assault on the town on March 24. It had been constructed during 1871-74 and reconstructed from 1926-28 in a lattice-girder style with four equal spans of 103 metres each. The long, raised approaches were constructed of brick arches — 65 on the western bank and 38 on the eastern side. The right-hand span had been cut at approximately one third, buckling the spans, and the piers were also damaged. Clearance work started on June 1 and a channel had been cleared by July 14 although work still continued to remove the overhanging section.

Right: **Size for size, by the end of the war Wesel claimed to be the most bombed town in Germany with 97 percent of the buildings in the town centre destroyed. Wesel was the objective of 1 Commando Brigade in Operation 'Widgeon', part of the overall assault across the Rhine on the night of March 23. Shortly before the Commandos crossed, Bomber Command sent in 80 Lancasters to soften up the objective. Then, minutes after they had crossed to the eastern bank (close to the blown Menzelen railway bridge in the background), a second very heavy raid from 200 aircraft hit the town. (IWM)**
Below: **The railway bridge was never rebuilt, but the smashed and broken brickwork of the arches and piers still remains — a fitting end to our sojourn along the Rhine.**

JERSEY COASTAL ARTILLERY GUN RECOVERY

By Terry O'Brien

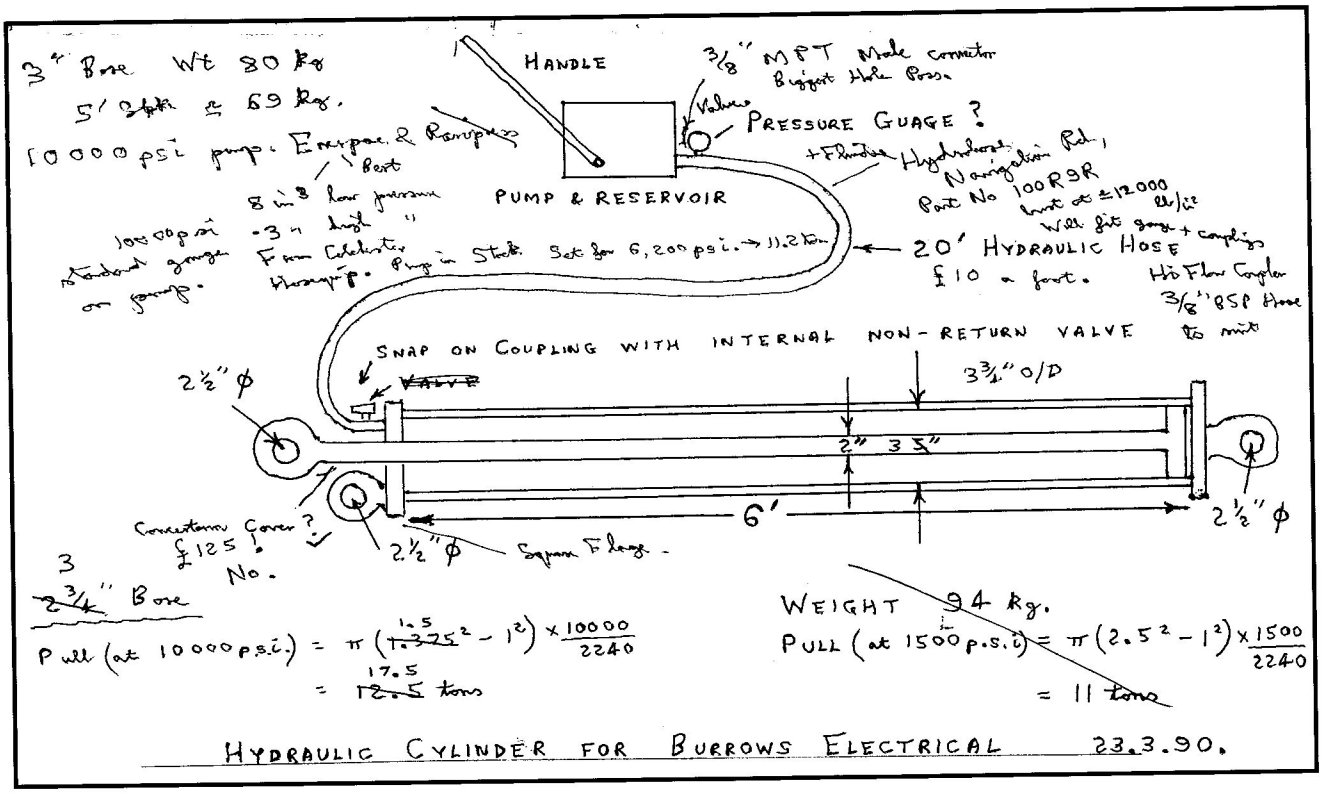
In 1945-46 the 135th Field Ordnance Unit of the Royal Engineers, under the command of Major Frank Sargent, had the task of disposing of all the various artillery weapons with which Germany had fortified Jersey — the largest of the Channel Islands. Light guns — 88mm Flak and the like — were taken out to sea and dumped, but the heavier weapons — 150mm and above — were thrown over a 300-foot cliff on the north-west corner of the island. Some of them were ex-WWI French field guns captured in 1940. *Top:* **A 150mm SK L/45, one of the four turret-mounted naval guns from Batterie Lothringen at Noirmont Point is lowered over the cliff by REME Ward LaFrance wreckers. (Jersey Evening Post)**

Readers of *After the Battle No. 72* will have read of my attempt to recover the 7-ton barrel and cradle of a 155mm K418(f) field gun from the sea at Les Landes, Jersey and may wonder how I became involved in such a project. As a boy, I had roamed the Portelet Bay area of Jersey during my school holidays and often seen the empty gun platforms at Noirmont Point. I believed that the guns had been scrapped, though I occasionally dreamt that I had found one! Then in 1988 my firm, Burrows Electrical Ltd, sent me to Jersey on business. While driving along St Ouen's Bay, I saw a notice saying 'Bunker Open'. My curiosity aroused, I parked my car and walked across the sand dunes to see the bunker. I was met at the entrance by Channel Islands Occupation Society member Dave Maindonald who conducted me round the 105mm K331(f) bunker. After examining German rangefinders, searchlights and railway wagons, Dave pointed out some photographs of guns lying on the rocks and he told me that the British Army had pushed Jersey's 29 large coastal artillery guns over the cliff at Les Landes in 1946!

That evening, following Dave's directions, I climbed down the cliff in front of the monolithic, five-storied German direction and range-finding tower MP3 to see the guns. Unfortunately, it was high tide, and I was leaving Jersey the next morning, but those barrels which were exposed looked in fairly good condition. I immediately decided to join the CIOS and return to Jersey during my holiday the following summer.

I arrived in Jersey in August 1989 and met Michael Ginns, the secretary of the CIOS (Jersey branch), at the entrance to the command bunker at Noirmont Point. He had issued a circular asking for articles to be submitted for publication in the Channel

Although four of the Jersey guns were later cut up for scrap (the 150mm Batterie Endrass at Westmount, St Helier), of the other 29 pieces dumped over the cliff at Les Landes, only two went into deep water. *Left:* **The remaining 27 ended up in a tangled mass of barrels, carriages and mountings, scattered at the foot of the cliff. (One gun, a 150mm K 18 from Batterie Haeseler at La Coupe, which failed to make it all the way to the bottom, was recovered in 1979 — see *The War in The Channel Islands Then and Now*.)** *Right:* **The barrel recovered by Terry O'Brien in May 1991, and the subject of this article, lies in the right foreground. This is as it was originally pictured by Terry in August 1989.**


3" Bore Wt 80 Kg
5' 3½" ≈ 69 Kg.
10000 psi pump. Enerpac & Ramps
HANDLE
3/8" MPT Male connector Bigger Hole Poss.
Valve
PRESSURE GUAGE ?
+Flange
Hydraulics Ltd, Navigation Rd, Northwich Ches CW8 4BP
Part No 100R3R
Limit of ±12000 lb/in²
Will fit gauge + coupling
PUMP & RESERVOIR
8 in³ low pressure
3 in³ high "
From Calculator
Pump in Stock
Set for 6,200 psi → 11.2 ton
10000 psi standard gauge on pump.
20' HYDRAULIC HOSE
£10 a foot.
Hi Flow Coupler
3/8" BSP Hose to suit
SNAP ON COUPLING WITH INTERNAL NON-RETURN VALVE
2½" ϕ
3¾" O/D
2" 3 5"
6'
2½" ϕ
Connectors Cover? £125! No.
2½" ϕ
Square Flange
3
3¾" Bore
WEIGHT 94 kg.
Pull (at 10000 p.s.i.) = π (1.5 − 1.375² − 1²) × 10000/2240
= 17.5 tons
Pull (at 1500 p.s.i.) = π (2.5² − 1²) × 1500/2240
= 11 tons
HYDRAULIC CYLINDER FOR BURROWS ELECTRICAL 23.3.90.

Over the years there has been much discussion over possible ways and means of recovering the guns. At least one person has been killed, lured by the attraction of so much war material, seemingly so accessible yet at the same time so difficult to retrieve. The Royal Navy raised some small parts in April 1988 by helicopter, but failed to lift a barrel, as did a team from the Territorial Army who attempted to pull one up using a winch in July 1990. Understandably therefore, when Terry arrived in Jersey the following month with nothing more than a long cylinder, a hand-pump and some rope in the back of his car, he was greeted with not a little scepticism. However, Terry's technical background — he was apprenticed to Hawker Siddeley Power Transformers and had been responsible for designing the six 25-ton step-down transformers which have supplied Jersey's power for the last 25 years — led him to look at the problem of recovery scientifically. This is his original sketch for a hydraulic cylinder designed to have a pulling power of over 17 tons.

Islands Occupation Review. I offered to write one, so he introduced me to Matthew Costard, the editor of the Jersey edition of the Review and after some discussion about articles on different subjects, Matthew asked me to write about the remains of Jersey's coastal artillery guns!

The next few days were spent on the rocks at Les Landes. I soon sorted out the five different types of gun ranging from 150mm K18s to 220mm K532(f)s by referring to photographs in back numbers of the Review and *The War in the Channel Islands Then and Now*. Many of the barrels were either broken or badly corroded but some, located in a gully at the low tide mark, had spent most of the last 43 years under water and were remarkably well preserved. I measured the barrels and photographed them.

The barrel that caught my attention the most was a 155mm K418(f) that had lost both its cradle and a four foot length of its breech (see front cover of the last issue — it passes horizontally just above 'Number 72'). It was by far the lightest of the barrels, weighing only about 2.5 tons, but was still nearly 16 feet long. I tried to move it by twisting a 16mm diameter rope with a nine-foot wooden beam, but only succeeded in breaking the rope and it was obvious that much more pull was required.

Having examined the gun barrels, I wondered whether it would be possible to recover one, and if so, which one? One of the K18s had come to rest about half-way down the cliff and had been winched up the slope and put on public display at Noirmont Point in 1979. I had located 26 out of the remaining 28 barrels, the missing two almost certainly being in deep water just off the rocks. Then I visited Batterie Moltke at Les Landes, which is about half a mile south of MP3. The battery had comprised four 155mm K418(f)s which were World War I French field guns that had been captured by the Germans, complete with vast quantities of ammunition, during the invasion of France in 1940. The CIOS were restoring a complex consisting of long tunnels connecting ammunition bunkers, crew quarters, a K418(f) gun site, and a gun pit for a 150mm quick-firing gun that had not arrived due to bombing of the factory in Germany. I met CIOS members Paul Burnal, Martyn Garnier and Daniel Scaife. They said that a K418(f) barrel and cradle was required to rebuild the gun on the original gun site, using a carriage that the Royal Navy had recovered by Sea King helicopter in 1988. (A specially lightened helicopter had tried to lift a K18 barrel, which had lost its breech, but had only succeeded in lifting the muzzle.) Paul was adamant that only the best preserved K418(f) barrel and cradle would do!

Back on the rocks, I knew that the worst of the four barrels was the broken one already described and lying near it was another very heavily corroded example which had a chipped muzzle and had lost both its trunnions (see front cover of the last issue — it is the vertical barrel in the centre). The two best preserved barrels lay at the far end of the gully mentioned earlier. The one on top had a bent barrel, chipped muzzle and the cradle thrust forward, as if it had just been fired; the one underneath was in a much more difficult position but, apart from slight wear on one side of the muzzle, was otherwise in perfect condition.

I now knew which barrel had to be recovered, but the difficulties were appalling. The best barrel would have to be dragged out breech first from under the 7-ton, 6-metre-long, bent barrel which it supported, to the entrance of the gully which was blocked by the remains of two 210mm Morser 18s! Added to this was the fact that the gully entrance was normally under water even at low tide. Then the barrel would have to be pulled up the sheer landward side of the gully by the muzzle, with the certainty that the front of the cradle would catch on protruding rocks and the gully edge.

Back home, I calculated the weights of the five types of barrels, produced scaled drawings and wrote my article. I decided to mention methods of recovering the barrels from the rocks. These included the use of a large helicopter, a heavy lifting boat edged in at high tide, a winch located at the top of the cliffs and a small team with hydraulic equipment. The more I thought about it the more convinced I became that a powerful hydraulic pulling cylinder would enable the barrel to be pulled in different directions for extraction from the gully. The cylinder could be tied to the barrel and to secure rocks with loops of polypropylene rope. I spoke to two of my colleagues at work, Bob Burrows and Dave Church, who had seen the guns in Jersey and were keen to help. We decided to attempt the recovery in May 1990, with my son, Dennis and Dave's son, Lee.

After much discussion, we thought that a pulling force of 12 to 15 tons would be needed, the stroke should be about six feet (as the ropes would stretch) and the cylinder weight should not exceed 100kg as it would have to be carried up and down very steep gradients by four men. Wycis Hydraulics of Witham, Essex, had been recommended to us, so we asked for a quotation. Fred Wiseman visited us and said that a cylinder operating at 1500psi would weigh about 250kg! Seeing our disappointment, he added that he could make one for us operating at 10,000psi which would only weigh about 100kg! It would have a six-foot stroke and a maximum pulling force of about 20 tons.

On Terry's first attempt, reported in our last issue, he had only a hand-pump with which to pressure the cylinder, and this took a long time for each pull. With the barrels under water for all but two hours per tide, the most difficult part was to extract his chosen barrel (a 155mm K 418(f) from Batterie Moltke located on the nearby cliff-top) from beneath another barrel resting on top of it. *Left:* **Terry had the assistance of his son, Dennis and a small band of helpers. Here Mark Powell works the hand-pump which, after some 25 minutes work, would have pulled the barrel a distance of about three feet. The gun would then be tied to the holding eye on the cylinder, the hoses swapped over, and the piston pumped out six feet. The pulling ropes would then be shortened, the hoses swapped back and the next pull begun.** *Right:* **The picture was taken on the third day to celebrate the end of operations in the gully. The barrel has been pulled out backwards — it now has to be pulled from the front up the gully side on the right. L–R: Terry O'Brien, Mark Powell, Phillip Witney, Terry's son, Dennis, and Paul Burnal.**

Eventually, all the equipment was assembled in my back garden and connected between two trees on the evening before we left for Jersey. Then, disaster struck. We discovered that our hand-pump (not supplied by Wycis) was faulty and the recovery attempt would have to be postponed!

Bob and Dave were committed to family holidays, so could not return to Jersey that year, but I had a second Jersey holiday booked for August. All I needed were some strong helpers to move the equipment about. I visited Batterie Moltke again in May and told the local CIOS members that I planned a recovery attempt on the best K418(f) barrel in August. I was able to show them a piece of equipment that I had made to lift the front of the cradle over protruding rocks. These men had seen both the Army and Navy fail to recover a barrel and were incredulous that I should even consider making an attempt. However, Paul and Daniel offered to help and Martyn and Tony Chalker seemed very interested. My son, Dennis, then decided to go on a camping holiday to Jersey with his friends, Mark Powell and Phillip Witney. I soon got them interested in my project, and they agreed to help. My strategy was to start the recovery with the local lads from Blackmore, Essex, but I knew that for success I had to involve the Jersey enthusiasts, before the lads lost interest.

In July 1990 the Territorial Army set up a winch at the cliff top, ran a cable through a large block tied to a rock and attached it to a 5.5-ton 8.2 metre K18 (see front cover of the last issue — it is the barrel with the white muzzle at top right). The K18 was dragged for about 40 feet until it caught in a small crevice, which terminated the operation (see photograph at top of page 43 — Stephen Johnson's son is sitting on the K18 in its new location!). Equipment abandoned by the TA and subsequently used by the author included two chains, wire rope and a long steel sheet.

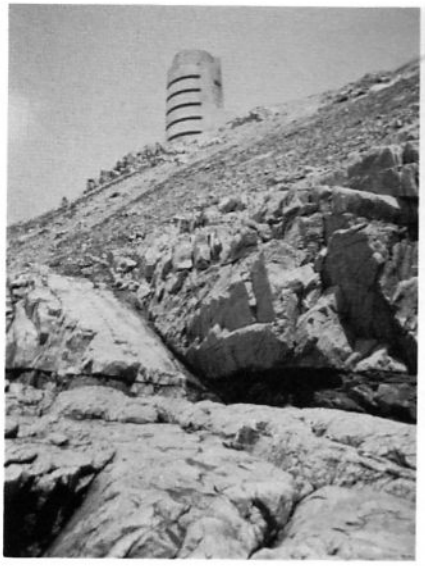
Dennis, Mark, Phillip, Paul Burnal and I started work on Tuesday, August 21 during a period of very low spring tides. Due to the tides, we could only work in the gully for a maximum of two hours each day, and had only four days to drag the barrel out from under its sister to the gully entrance. This objective was accomplished in three days, the steel sheet left by the TA being used to cover the wrecked Morser 18 carriages. The Blackmore lads had worked very hard but by now their enthusiasm was fading. However, some of the local CIOS members were becoming interested as they saw the barrel moved two inches on Tuesday, two feet on Wednesday and four yards on Thursday. On Friday the muzzle was pulled up the side of the gully. By Saturday all the work was being carried out by Paul, Daniel, Tony, Martyn and Lou Hulatt, a CIOS member from Cambridge who had arrived, by chance, at the right time. On Sunday, the barrel was pulled out of the gully after 44 years using a force of about 12 tons, though 18 tons was applied when a trunnion caught, which disintegrated the protruding rock! The next three days were used to pull the barrel up the sloping rocks towards the high-tide mark. Then it was tied to the breech of a 9-ton K532(f) for the winter, using the small chain and wire rope left by the TA. (A full account of our efforts during August — and very much more — is given in the CI Occupation Review No. 19 which is obtainable from Michael Ginns, 'Les Geonnais de Bas', Rue des Geonnais, St Ouen, Jersey.)

We had found that hand-pumping is very slow and tiring, so I obtained a 5hp petrol-engined pump for our renewed effort in May 1991. I was fairly confident of success, provided enough people would help. Lou Hulatt said he and his son, Paul would be coming over to Jersey for eight days, and Martyn Garnier was taking two weeks of his holiday. Tony Chalker was taking a couple of days off work and Danny Scaife and Dave Maindonald said they would help whenever possible.

I arrived in Jersey on the morning of Friday, May 17. In the back of my car was about half a ton of equipment including the petrol pump with pressure gauge (calibrated in tons) and 12-foot 12,000psi hoses, the hydraulic cylinder, 400 metres of 24mm diameter rope and a 20 metre length and 40 metre length of 14mm diameter wire rope. I stopped at a garage to fill two 5-litre containers with lead free petrol for the pump.

After booking in at my guest house, I headed for Les Landes. Since I had last seen it, the K418(f) barrel had slid back several feet, but Martyn and Danny had been down several times during the winter and attached extra wire ropes. The steel sheet was in the gully and the heavy chain was still in the rock pool where I had hidden it the previous August.

With the sea raging in the gully below, the barrel has been dragged out of its 45-year resting place upside down. At this point the far trunnion has caught on a protruding rock — the strain gauge registered some 18 tons before the rock shattered and it was free to move again.



Left: **The 'task' that remained. Out of the picture to the right is the first steep slope of 25 yards still to be tackled. Then came the 10 degree slope with the dangerous drop in the foreground, followed by the 6-foot vertical step. After this came a fairly smooth, yet steep, 30-degree ramp for 30 yards before the final loose scree led 70 yards up to the top beside MP3.** *Right:* **The 'winter' position. This is how the barrel was left once on the flat at the end of Phase One, securely chained to another gun. Here it remained during the winter of 1990-91 until Terry could return to continue operations the following May. (Daniel Scaife)**

Then I climbed up the difficult route that the barrel and cradle would have to take to reach the cliff top. First there was a 25-yard-long steep (over 30 degrees) slope that bristled with protruding rocks. Then there was a 35-yard-long more gradual rock slope (of about 10 degrees) with a steep-sided gully protruding into it, which would have to be avoided. Next came a 6½-foot-high vertical step leading on to a natural rock ramp 30 yards long and sloping steeply at 30 degrees. To make matters worse, there was no suitable rock to tie to anywhere in the vicinity of the ramp. Once at the top of the ramp, a right turn led to the final 70-yard slope of soil and fairly small loose rocks.

SATURDAY, MAY 18

I drove my car very slowly along the bumpy track that leads to MP3 where CIOS member Geoff Zimmer was waiting to help. Lou and Paul Hulatt arrived shortly afterwards and we decided to carry the pump down first. We grasped one handle each and it was soon safely down on the rocks. When we returned to the cliff top we found that Danny had arrived after helping to open Batterie Moltke. I had protected the hydraulic cylinder with a thick cardboard tube and it was slid down the slope using a rope at front and back, the ends of which were held by Lou, Danny, Geoff and me. By 2 p.m. all the equipment needed for the initial stages of the recovery was down on the rocks.

We positioned the heavy chain around the barrel behind the outriggers while standing on very slippery rocks. The fixed eye of the cylinder was tied to the same rock that had been used the previous August with four ropes, the hoses were connected to the cylinder, and the pump motor was started at 3 p.m. After moving the operating lever to the advance position the piston was pushed out in only 45 seconds (3½ minutes by hand-pump) and the pulling eye was then tied to the chain around the barrel. When the lever was moved to the retract position the barrel started to move up the slope but I stopped it when the wire ropes which had secured it became slack. It took ten minutes to cut through the four rusty wire ropes with a hacksaw and the first pull was then completed. This procedure was then repeated and the barrel moved up the slope muzzle first.

Each pull was taking just over 3 minutes (25 minutes by hand-pump), and the barrel was tied to a convenient rock to prevent it sliding backwards between pulls. Tony and Martyn arrived at 4.30 p.m., after duty at Batterie Moltke, to find the barrel had already been moved several feet, and by the end of the afternoon we had advanced some nine yards up the first slope.

SUNDAY, MAY 19

When we arrived, it was high tide and waves were still reaching the barrel. The rest of the steep slope bristled with protruding rocks and my plan was simply to attack them using the enormous pulling power available. However, the lower links of the chain and a trunnion kept catching on the rocks. Tony had plotted the best available route and we were able to steer the barrel by altering the position of the chain, when it was not touching the ground. Another problem was that the hydraulic cylinder was rotating and threatening to damage the hoses, but a five-foot crowbar pushed through the fixed eye kept the spigots upright! Despite all the hard work from Lou, Tony, Martyn, Danny and Geoff, two ropes had broken, progress was slow and we had moved only a further 16 yards. However, the sea had been left far below and Martyn said that he would bring his 5-ton jack down the next day.

Sunday morning. Although it had been moved nine yards, the barrel was still partially under water at high tide.

Left: **Monday morning — the top of the first slope. Lou Hulatt and Tony Chalker secure the barrel to rocks between pulls.** *Right:* **About to gain the second, more gradual slope. The motorised pump used in 1991 reduced the time taken for pulls eight-fold as well as cutting out the laborious hand-pumping and hose swapping.**

MONDAY, MAY 20

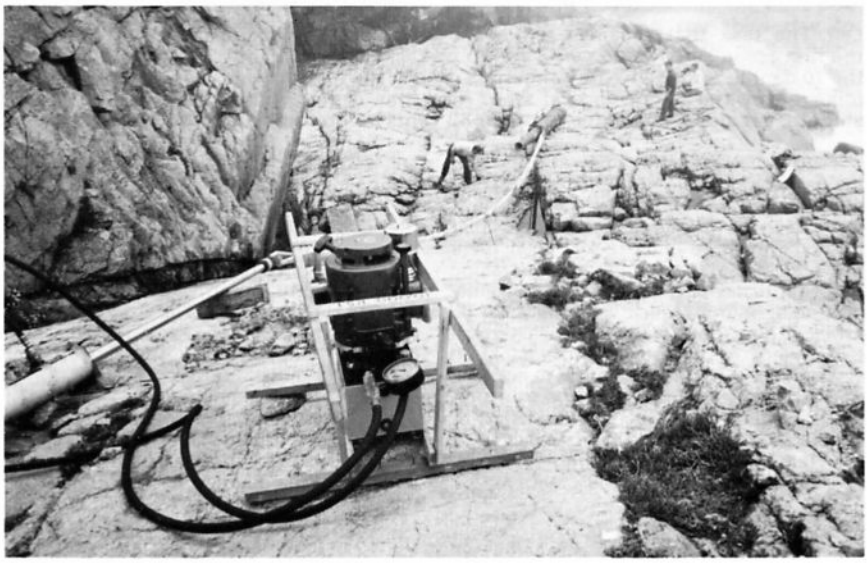
Lou and Tony handled the ropes while Martyn used his jack to lift the barrel whenever it caught. By midday the barrel had reached the more gradual slope, but was rather near the edge of the rocks, so it was rolled over, using the jack. The chain was positioned with the pulling hook on the seaward side so that the barrel changed direction and moved away from the edge to avoid the steep-sided gully that lay ahead. Lou had to leave at 2 p.m., but progress was now much easier as the barrel no longer had to be tied on to rocks between pulls. The gully was negotiated using wooden beams to prevent the barrel rolling back over, and Dave arrived at the end of the afternoon to find that the barrel had advanced a further 26 yards!

The muzzle was now only 11 yards away from the vertical step that would have to be surmounted the next day. Unfortunately the steel sheet which would be required for this purpose was still in the gully under about 15 feet of water. (Poor planning by the author!) Low tide would be at about 7 p.m. I returned after dinner to find that the steel sheet was still covered by about five feet of water, but Dave Maindonald had stripped to his shorts and jumped into the freezing water! After about half a dozen duck dives he succeeded in securing a G-clamp to the steel sheet and emerged looking rather purple! Dave, Lou, Martyn, Geoff and I formed a tug-of-war team and within half an hour the steel sheet was positioned near to the vertical step. This superb effort had saved us at least a day's delay in our operations.

TUESDAY, MAY 21

Tony, Martyn and I decided that the only place to tie on to was a 20-ton rock positioned below MP3 and about 95 yards from the gun muzzle. We dug out some earth, chiselled some grooves in the rock to locate the ropes and tied on the 40 metre length of wire rope. Tony dragged the other end of the wire rope across the treacherous slope towards the top of the rock ramp, where we tied on the 20 metre length of wire rope (doubled up). This in turn was tied to the cylinder which was positioned about 10 yards down the rock ramp.

Pulling started at 2 p.m. I placed some wooden beams under the wire ropes and the muzzle was soon close to the vertical step. The 12-foot-long steel sheet was placed in front of the muzzle with the far end on the step. Then the muzzle was pulled a few feet up the steel sheet, which started to bend. We knew that another pull might wreck it! Lou suggested that the pulling ropes could be tied to the muzzle with several turns of rope to give the muzzle extra lift. This idea worked well and three feet of the muzzle was soon resting on the bottom of the rock ramp. Another 13 yards of progress had been made. That evening I managed to release the trapped ropes and tie the lower end of the steel sheet to the barrel.



The cylinder and pump on the rock ramp with the piston fully extended ready for the first pull on Tuesday.

WEDNESDAY, MAY 22

Slow progress was made up the steep slope of the rock ramp. Although the surface was remarkably smooth, the chain caught several times in fissures. I was carefully watching the rope tension on the pressure gauge, the limit now being only 9 tons. As soon as this figure was reached, I stopped the pump and Martyn

Wednesday. The barrel, six metres long, on the point of balance on the two-metre step. The steel sheet left behind by the TA the previous year lies discarded, having been used to help the muzzle slide up and over the step.

started jacking. Lou and Paul Burnal were having trouble with twisted ropes that took some time to sort out. They had to leave during the afternoon, but Tony arrived after work. I was experiencing difficulties with the pump which was not level and was difficult to start. However, another 15 yards were gained.

THURSDAY, MAY 23

I was on my own during the morning, but managed to complete another three pulls up the ramp. Martyn arrived at noon to find the barrel positioned too close to the cliff alongside the ramp and heading directly towards a large outcrop of rocks. He jacked it up to near the point of balance and I rolled it over away from the cliff with my foot. Lou and Tony soon arrived and by 3 p.m. the barrel was at the top of the ramp! It had now travelled 90 yards in five days and for the first time could be pulled up the final slope from the cliff top. We carried the cylinder about 30 yards up the slope and started laying out ropes and cables, both of which were doubled up. A rock at the cliff top was selected as an anchor point and dug out, although it appeared to move slightly when levered with our crowbar!

By now, I was aching all over, Martyn had been to hospital that morning about his back and Tony was looking tired. Only Lou was still as strong as ever. That evening at the guest house Shaun Manning, a Volvo service engineer from Huntingdon, said that he could arrange for a giant four-wheel-drive front loader to be on the cliff top at lunch time the next day! I knew that this was an offer that could not be refused.

Left: **Wednesday evening saw the barrel at a point roughly mid-way on the steep 30-degree rock ramp.** *Right:* **By three o'clock on Thursday afternoon, the rock ramp had been traversed. In five days the team had moved the 7-ton monster nearly 100 yards, but the physical exertion was now beginning to tell as they faced the final hurdle — the drag up the loose scree to the cliff top,**

Then, as luck would have it, a saviour stepped in to lend a hand. Shaun Manning, a Volvo service engineer staying at Terry's hotel, overheard him discussing the day's events in the bar that evening. Straightaway he offered the services of a Volvo front loader to pull it up the final 70 yards. Here, on Friday morning, Lou binds the main rope to the chain hook to make sure it does not pull out.

When, after the first pull on Friday, the four-wheel front loader proved insufficient, Jim went off and returned with an even bigger beast. The two vehicles were then roped in tandem and, when everyone was well clear, Terry gave the signal.

'Like a speedboat cresting the waves,' is how Terry described the final triumphant moments, captured here by Martyn Garnier. An opportunity came the following Friday for Terry to explain the complete operation to CIOS members and to thank all those who had helped make the recovery possible. Terry had proved all the sceptics wrong, and Society secretary, Michael Ginns, admitted in his June 1991 newsletter that 'I have yet to eat the hat that I said I would eat if Terry ever recovered that gun!'

FRIDAY, MAY 24

We finished laying out the ropes and cables during the morning and moved our equipment out of the way. Jim Simon of E.S.P. Plant Hire Ltd, arrived at 1 p.m. driving an enormous front loader. He laid out some rollers, joined his cable to ours with a large shackle and drove off. The barrel swung round to point up the slope, moved a few feet forwards and then stopped! Jim found himself suddenly halted with his huge tyres digging deep holes in the ground! 'I'll be back at 5 p.m. with more traction', he said, and drove off with Shaun in a van.

True to his word, at 5 p.m. Jim returned driving a 25-ton six-wheel-drive dumper truck with his partner Byron Noel in the cab. The dumper truck and front loader were shackled together using a wire rope and then Jim and Byron drove off, their mighty engines driving a total of 10 huge wheels! The barrel moved about 10 feet but the front of the cradle caught in some rocks and a rope broke!

We rushed down the slope and Dave and I dug out rocks while Lou and Tony retied the chain to the wire ropes using six ropes. The crowd that had gathered moved well back, I waited until everyone was well out of the way and then gave the signal to Martyn who waved the drivers off. Jim and Byron headed towards the rifle range butts and this time nothing was going to stop them! The 7-ton barrel accelerated up the slope with the muzzle several feet in the air and the breech digging a deep furrow in the soft ground. It looked like a speedboat cresting the waves as it charged across the rocks near the top of the slope and ended up on level ground well behind MP3. As the vehicles stopped, the muzzle dropped and several gallons of salt water flooded out! As we gathered round for photographs, we could hardly believe that the K418(f) barrel and cradle were on the cliff top again after 45 years and that our task was complete.

SATURDAY, MAY 25

Jim transported the barrel to the Batterie Moltke site using a giant fork-lift truck, where it was positioned on blocks by Tony and Martyn. Lou, Danny and Paul helped me to recover the remainder of the equipment which was scattered about the cliff-side. The pump was soon carried up by the four of us. The cylinder was pulled up by Danny and me using a rope through the fixed eye and Lou using his incredible strength to lift the lower end. We were finished by lunchtime and had a drink to celebrate the successful recovery operation.

Justifiably wreathed in smiles, Terry stands alongside his stalwart band of helpers. L–R: Geoff Zimmer, Byron Noel, the driver of the front loader, Jim Simon who drove the six-wheeler, Paul Hulatt, his father, Lou Hulatt, Tony Chalker, Dave Maindonald and Martyn Garnier. Restoration work on the carriage is already in the hands of Martyn, who is the Channel Islands Occupation Society's metal-working expert, and it will not be long before barrel is mated to carriage for them to be displayed in one of the original Batterie Moltke emplacements.

From a pre-war student at pilot training school to jet pilot: Marshal of Aviation Ivan Nikitovich Kozhedub.

THE SOVIET UNION'S FIGHTER ACE

By Nikolai Bodrikhin

Ivan Nikitovich Kozhedub has more victories than any other Russian military pilot. By his own account he has personally brought down 62 aircraft with another 38 destroyed jointly with other pilots. If one takes into account the system of calculation of victories used by the Soviet Army, which required the evidence of two pilots or an official confirmation from the ground forces, his accredited victories are more than understated.

I. N. Kozhedub served in the front line from March 1943 till the end of the war. He flew La-5 and La-7 fighters and was never shot down. Three times he was awarded the highest military award of the USSR — Hero of the Soviet Union. (Apart from Kozhedub, there are only two other people — Marshal Budenny and fighter pilot Pokrishkin (59 victories) who are heroes of the USSR three times over, and only one four times hero — Marshal Zhukov.)

After the war I. N. Kozhedub mastered most of the new aircraft and helicopters which came into service with the Soviet Air Force. Today he is Marshal of Aviation and General-Inspector of the Ministry of Defence of the USSR. Nikolai Bodrikhin interviewed the Marshal exclusively for *After the Battle*.

Bodrikhin: Ivan Nikitovich, though you arrived at the front line an experienced pilot, two years before you had been an instructor in a pilots' training school, a post which is given to the best pilots. Your military career was not smooth, was it?

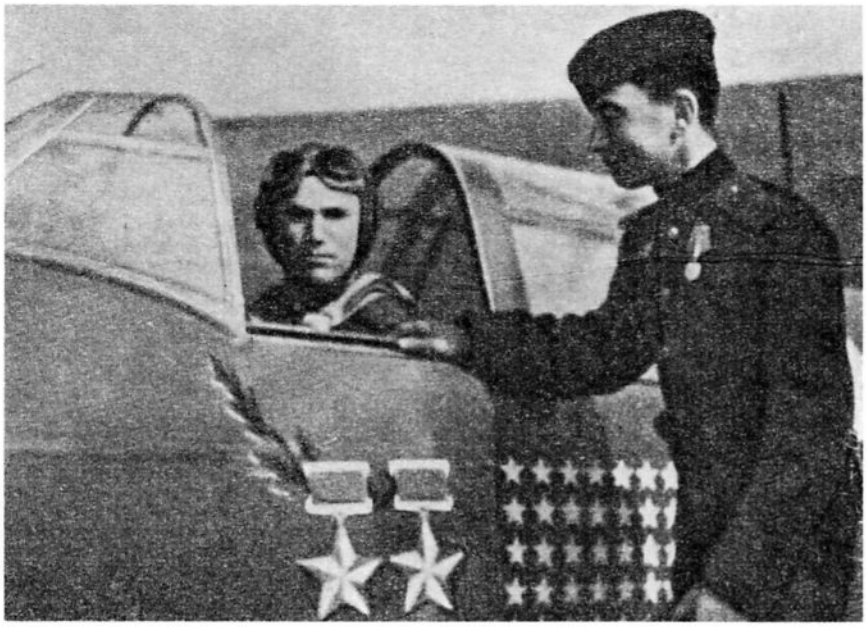
Kozhedub: Well, it's one thing to master the skill of pilotage and quite another to participate in battle operations. My first flight was a complete failure — all mistakes! I lost my leader, nearly crashed my plane and only just escaped death. The order to take off came quite unexpectedly — at the point when the cowlings were off the aircraft. While the mechanic was still closing mine, my leader started. I followed him with delay. No sooner had I taken off than I saw six Me 110s. I remember well thinking by which method they should be brought down but there was a great gap between intention and skill. As I just began attacking them, four Me 109s fell on me suddenly from about 3,500 metres. I could hardly land. A 'Messer' destroyed my plane's wing, hit the cockpit and twisted the armour back.

Although I got back safely, my aircraft needed considerable repair. I received the order to go to division headquarters. There I was told: 'Your plane will not be fit to fight again quickly. Therefore you are assigned as commander of air notification and observation. The task is very responsible.'

I was thunderstruck by the news. It seemed to me that I was having a nightmare. 'A fighter pilot is not trained for that, is he?' I asked. But the headquarters officer was uncompromising. 'Return to your regiment and wait for the order to arrive.'

What should I do? I decided to turn to the regimental commander, Major Soldatenko, for help. Now here was a true 'father to the soldiers', and an excellent pilot too: he had

In the cockpit of his La-5 in 1943 when a lieutenant.



Left: **Kozhedub with Simon Lavochkin, head of design for the 'La' series of aircraft. Kozhedub was awarded his first 'Hero of the Soviet Union' star on February 4, 1944 and his second on Aviation Day — August 19 — later that same year.** *Above:* **Photographed in his La-7 with the 'Son of the Regiment', Daniel Harms.**

two Red Banner Orders for the Spanish campaign. I found him at the command post and begged him to let me stay in the regiment. 'I want to fight as a pilot. I'm a fighter pilot, am I not?'

At first the commander didn't agree but, seeing tears in my eyes, he surrendered. 'OK, you will stay here and fight the enemy.'

Bodrikhin: The Nazis considered Slavonic people their old enemies and an inferior race. Did you have any private scores to settle against them?

Kozhedub: Which of the Soviet people didn't? I had it as well. My elder brother, Jacob, had been killed in the Stalingrad battle and my family had stayed in the village occupied by the Nazis. I'll never forget my first letter from home after the liberation of my native village, Obrazheyevka, in September 1943. It was so characteristic of my father. This is what he wrote:

My dear son, Vanya,

All of us wish you, front line soldiers, good luck, victory over the enemy and courage. I was so very pleased to get your letter! What shall I write to you about us? Where are Jacob and George [Kozhedub's brothers] now? I don't know. George has been taken to Germany. Jacob has been at the front since the early days of the war. Motya [Kozhedub's sister] and her child are all right. The fascists didn't have time to burn down our village. The shells fell nearby but only two huts were destroyed. I myself was lying pressed to the ground and wasn't injured. In your mother's native village many houses were burned down — 13 of our villagers were killed. Our neighbour, Sergei Andrusenko, was tortured to death by the fascists in the building of the technical school in which you used to study. And another 800 people were killed there. I am happy to know that you are fighting the fascists. But please, don't be carried away and fulfil your duty with honour.

Your father,
Nikita Kozhedub

My father was a religious man. He was a village church clerk and was buried in the church courtyard. But he kept repeating his wish in his every letter: 'Don't let yourself be carried away. Don't be an executioner in war. Fulfil your duty with honour.'

Bodrikhin: And what about George's fate?

Kozhedub: He was burned in Maidanek concentration camp.

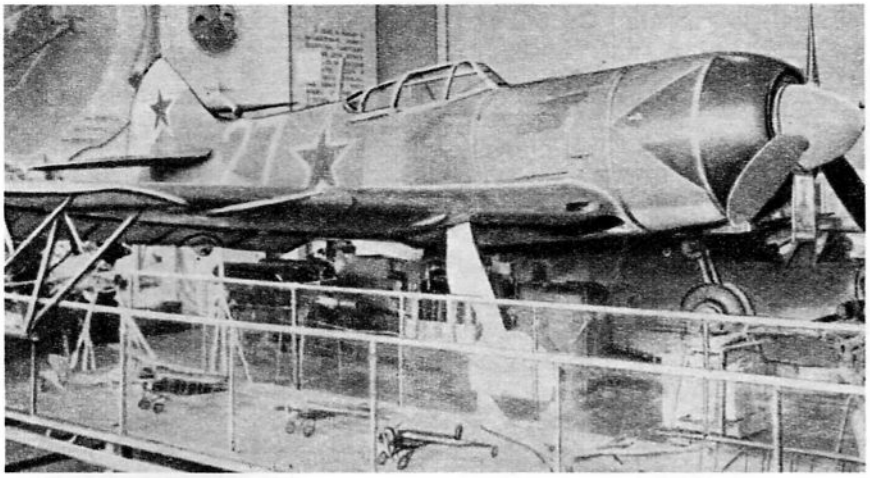
Bodrikhin: Whereas the beginning of your military career was quite common, its continuation was extraordinary. Within 26 months of combat you had scored 62 personal victories and 38 jointly, with a dozen destroyed enemy planes presented to your followers so that they could safely reach the 'award mark', and at least another dozen not confirmed because there were no witnesses. And you didn't have to use your parachute once or were ever brought down. So what features of character do you consider to be most important for a fighter pilot?

Kozhedub: Luck comes with discipline and experience. A pilot who possesses these features is called an ace. Once I formulated those essential points necessary for victory in combat:

1. Study your enemy's strong and weak points carefully.
2. Act according to the following criteria: be the first to spot the enemy, assess him and his capabilities, and be quick to come to a decision.
3. Be courageous and devoted to your motherland.
4. Be able to consider things creatively: be active, purposeful and brave in your consideration.
5. Help your friends and compatriots.
6. Understand what is happening at each stage of the flight.
7. Have a clear-cut idea of all technical and tactical capabilities.
8. Be physically fit.

The basis of all these rules was taken from *How to Win* by A. Suvorov. [Duke A. V. Suvorov (1730-1800), generalissimo, who took part in the Seven Years War, and the Italian and Swiss campaigns.] Ten of Suvorov's commandments were written down in my notebook which I always had on me as a talisman on every flight. Here is my shabby-looking notebook with stains of sweat at the corners symbolising that battle is hard labour. On its first page it has two phrases

Having achieved his first 'jet' victory on February 19, 1945, he became a third star hero on Aviation Day, 1945. Here Colonel Kozhedub meets young Soviet Pioneers.



Marshal Alexander Krasovsky, was instrumental in saving Kozhedub's La-7 for display in the Museum of Aviation in Moscow. It has since been transferred to the Monino Aviation Museum east of the city.

from Stalin's speech on November 7, 1941: 'Let the image of our great ancestors Alexander Nevsky, Dmitry Donskoy, Kuzma Minin, Dmitry Pozharsky, Alexander Suvorov, Michael Kutuzov inspire you in this war! Let the victorious banner of Lenin inspire you!' It also contains sketches of German aircraft, tactics, scenes of battle, and brief diary notes. And, quite unexpectedly, among the pages is a dried, colourless butterfly.

Bodrikhin: What was that for, Ivan Nikitovich?

Kozhedub: This was to remind a pilot that a plane is fragile, as fragile as this butterfly.

Bodrikhin: During the war you flew the Lavochkin fighters La-5 and La-7. You used six aircraft of this kind. How do you evaluate these aircraft? Did you have a chance to compare them to others, to the Airacobra, for example?

Kozhedub: I can use a metaphorical comparison: an Airacobra in flight is like a tram, a Lavochkin is like a stallion. It's an excellent aircraft: a powerful engine ASH-82 of 1,850 bhp with two banks of seven cylinders, very mobile with good guns. The Germans, in response to the La-5, produced the FW 190. The 'Fokker' had four cannon so one mustn't get caught in its frontal attack. To counter it we produced the La-7 in August 1944. In my opinion the La-7 was a perfect piston-engined warplane. However, it was very important to master the delicate skill of pilotage which then made the plane easy to understand and obedient.

Bodrikhin: Can you recollect any event which made you feel the master of the sky?

Kozhedub: Well, extra self-confidence is dangerous even in driving a car . . . The sixth sense comes with experience, sometimes not until fifty flights and a lot of moral and physical effort. A turning point? I remember accompanying a regiment of 'Stormers' to Rogan when we found ourselves caught in extremely dense anti-aircraft fire. Even now I can clearly see the picture of anti-aircraft projectiles bursting all around, the plane shaking, and my hands unconsciously leading the aircraft out of the captivity of those death clouds; leading it out perhaps by the only possible way.

Bodrikhin: Which kind of German aircraft was most difficult and which the easiest to bring down?

Kozhedub: Easy? But every plane has a human being in it, a professional, and he is, as a rule, a courageous and self-assured pilot. However, Ju 87s and Hs 126s which had no guns facing rearwards were easy, but the FW 190, later designs of Me 109, and jets were very serious rivals.

Bodrikhin: You have an Me 262 on your account as well — one of the first jets brought down in an air attack. How did it happen?

Kozhedub: A swift abrupt intercept and the poor visibility below the Me 262 made it possible. When my co-pilot, Dima Titorenko, opened fire the enemy jet turned violently aside and approached me. I turned my plane, pulled the trigger and just didn't miss my chance.

Bodrikhin: Did you happen to see any of the pilots brought down by yourself?

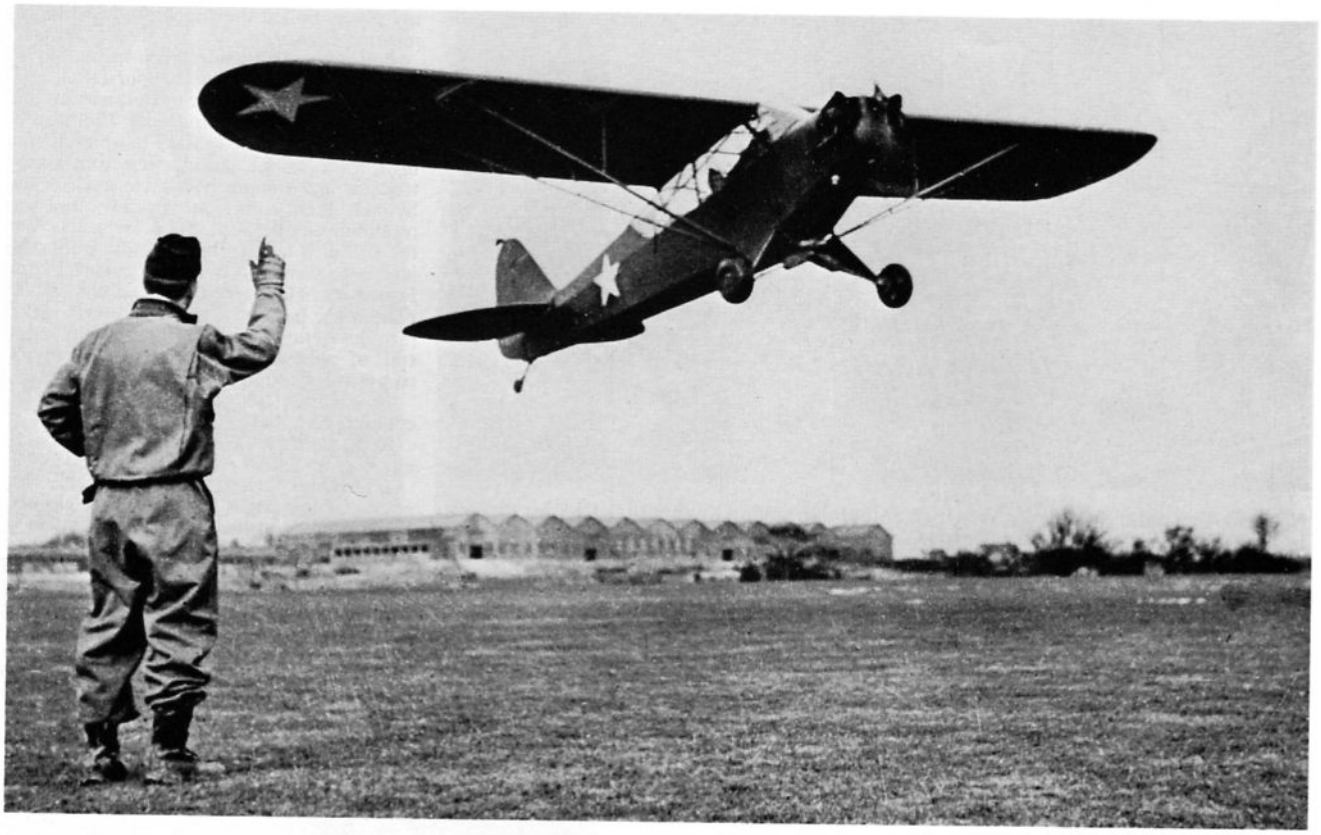
Kozhedub: Quite close to Berlin I shot one down right over the aerodrome. I remember him very well: a nice-looking fair-haired man in a white velvet jacket, well-ironed grey trousers and shining boots. He got rescued by mere luck, baling out very low, and was trembling all over with shock. He said he was the son of a famous baron and a pilot who had ten victories over American Flying Fortresses. He wanted to meet the fighter pilot who had brought him down. So I introduced myself to him: 'Ivan Kozhedub, a son of a poor peasant', the regimental commander adding: 'And sixty victories.'

Bodrikhin: Did you have any more encounters like that?

Kozhedub: No, I didn't. I always tried to attack from a very short distance.

Bodrikhin: Soviet war veterans are rare guests in the pages of western magazines. What would you like to wish the readers of *After the Batile*?

Kozhedub: To all the veterans, former front line soldiers who defeated fascism I wish good health, cheerfulness and well-being to their families. I wish pilots good luck and always to return to their land. Let our common sky be always peaceful. To other readers I wish success, happiness and mutual understanding.



US ARMY AIRSTRIPS IN BRITAIN, 1942–1945

By Ken Wakefield

In the spring of 1944, Bob Davies, then aged 13, spent much of his free time playing in the fields and woods behind his home in Cardiff. Like many wartime schoolboys, Bob had more than a passing interest in things aeronautical, but the district where he lived, now known as Heath Park, was mainly a centre of US Army activity. Besides occupying Maindy Barracks and a nearby group of huts known as Camp Heath, American soldiers were also billeted in adjacent private homes as they continued to arrive in ever increasing numbers. A similar military build-up was to be seen in most southern counties of England and Wales and this could only mean one thing — the long awaited invasion of German-occupied Europe was fast approaching.

For civilians in many parts of Britain the massive American presence brought sweeping changes to their everyday lives. Not all of these were welcome, but certainly the arrival of the invasion force brought new hope for the future. After more than four long years of war, with its many sorrows and deprivations, there was a deep longing for a return to peaceful normality. War-weariness was widespread, but for Bob Davies and many youngsters like him — together with a significant portion of the female population — the arrival of the 'Yanks' heralded an exciting and in many ways enjoyable period of the war. Looking back to those days Bob recalls: 'We lads welcomed the friendly invasion of our fields by the Americans, and mainly through their own particular form of recreation — baseball — a special bond developed between us. We often played the game ourselves, using the masses of spare equipment they always brought with them, and the Yanks, being a good-natured, carefree lot, didn't mind in the least.'

The Jeeps and trucks of the well-equipped Americans were to be seen everywhere, but one day equipment of a very different kind arrived. 'It was a fine Sunday morning', Bob Davies recalls, 'and by about nine o'clock my pal and I were out playing in the fields. The area was far less built-up in those days and all was very quiet and peaceful when we came across an American soldier sitting on a log.

An L-4B of the II Corps Air OP School taking off from the polo ground at Perham Down, near Tidworth, Wiltshire, on November 23, 1942. Perham Down, one of the first US Army airstrips in the UK, was also one of the biggest. (F. T. Steele)

We started talking, paying little attention to the fact that he was wearing a steel helmet instead of the usual baseball gear. He was also armed with a carbine and beside him was a large pack. Suddenly our Yank friend leapt to his feet and scanned the sky as an aeroplane, first seen as just a dot in the distance, hummed into sight. From his pack the American rapidly produced two rolls of white cloth and then laid them out in the form of a cross in the centre of the field. Shortly afterwards, to our amazement, the aircraft skimmed in over the hedge and touched down in the field. There, rolling along a few yards from our very noses, was a drab green Piper Cub aircraft, sporting large white stars. Within minutes two other Cubs landed and all three were quickly drawn up under the trees at the edge of the wood.'

To see an aircraft at close quarters, outside the confines of an aerodrome, was a rare wartime occurrence and Bob Davies could hardly believe his good luck. 'Strangely', Bob relates, 'there were never any restrictions placed on civilians going into that field during the months the planes were there, and people continued to walk and exercise their dogs. Children also played there, yet the planes were frequently taking off and landing. I remember peeping into the cockpit of a Cub one day and looking at a map which showed roads, rivers, woods, etc. The pilot explained "We navigate by them, boy. Follow the railroad tracks, mostly". I was always hoping for a flip, but the Yanks' friendly laxity never stretched that far.'

Reflecting on those events of 46 years ago Bob Davies says: 'Everyone admired the skill of the pilots. As can be seen to this day, they had less than 400 yards in which to take off and land on what was then a rough grass surface bounded by a row of houses on one side, 20-foot hedges on two sides, and a 35-foot high wood on another. A four-centuries-old giant beech tree dominated one corner and the field was set in a fairly populous suburb; on take off the Cubs would clear the rooftops in Heath Park Avenue by barely 50 feet, yet never once was there a mishap to any person or property, British or American. When walking over Heath Park, as it is now, I often think of those Piper Cubs. We knew they were used for artillery spotting and reconnaissance and just before D-Day they suddenly disappeared, as did a lot of the American soldiers. These days many people, my own children included, find it hard to believe that it really happened, and when I talk about the time American planes landed over the garden wall I suspect that nobody really believes me.' But believe him they should, for it certainly did happen.

At about the same time another airstrip came into use in Cardiff when American L-4s adopted a field at Llanishen used by gliders of a local Air Training Corps squadron. Strips also appeared in other parts of Wales, as Howell Davies well remembers. Howell, then serving with the RAF, arrived home on

Typical US Army airstrip for liaison aircraft where a minimum length of 300 yards was specified for L-4 Cubs and 400 yards for Stinson L-5 Sentinels. This particular airstrip is at Heath Park on the north side of Cardiff in South Wales.

Above: **Bob Davies (left) and Ken Wakefield visit the site of the former Heath Park airstrip. Smooth parkland has replaced the rough grass of 1944 but otherwise the field is little changed. (M. Amundson)** *Below:* **Known to the Americans as Camp Heath, a number of the wartime huts still remain in the woods to the south-east of the strip.**

Left: **Activity at Perham Down on December 3, 1942. Lieutenant Lawrence E. Ballantine of the 29th Infantry Division uses an SCR-609 radio to communicate with an L-4 during training. (National Archives)** *Right:* **'Sad Sack' was an L-4B Cub (43-643) of the 29th Infantry Division piloted by Lieutenant 'Tom' Steele. (F. T. Steele)**

leave in the spring of 1944 to find Cubs using no less than three strips in the vicinity of Abergavenny. And on the other side of the River Severn, at Abbots Leigh near Bristol, young David Wintle enjoyed an experience similar to that recalled by Bob Davies. In David's case a light aircraft, which he instantly recognized as a Piper L-4, was seen to circle low over Abbots Leigh before disappearing out of sight below the treetops of Leigh Woods. A bicycle-mounted search of the district followed and before long the 14-year-old aviation enthusiast found a 'secret' American landing ground on a sports field alongside Beggars Bush Lane.

By June 1944 American airstrips were established in many parts of Britain, but the majority were in the western half of the country where, for logistics reasons, US Army units were mainly stationed. Most of the light liaison aircraft using these strips belonged to Field Artillery (FA) units of Army Ground Forces, but although primarily intended for artillery Air Observation Post (Air OP) duties, they were also used extensively on communications, personnel transportation and courier work.

The most widely used liaison aircraft was the Piper L-4, powered by a 65hp Continental O-170-3 (A-65) engine. Although officially called the Grasshopper, it was invariably known as the Cub, the name of the almost identical civilian lightplane from which it was developed. Higher HQs of the FA also used the heavier Stinson L-5 Sentinel, powered by a Lycoming 185hp O-435-1, but most UK-based aircraft of this type were operated by liaison squadrons of the Ninth Air Force. Although belonging to the USAAF, and therefore coming under the administrative control of the local Army Air Forces commander, aircraft of the liaison squadrons were attached to higher level HQs of Army Ground Forces. They were employed on courier duties, mail runs, general communications and administrative flights, but they were also intended for front line reconnaissance work and, if required, could be used to augment FA aircraft on Air OP duties. Normally 32 aircraft (four flights of eight) were assigned to each squadron.

Features shared by the two-seater L-4s and L-5s were their simplicity — essential for easy maintenance with a minimum of ground equipment — and an ability to operate from short, unprepared surfaces. Some of the many US liaison aircraft which came to Britain between 1942 and 1945 were based on conveniently located RAF, Fleet Air Arm or USAAF aerodromes, but the majority used improvised airstrips located close to their parent FA battalions, division command posts or other Army HQs.

The actual number of liaison aircraft based on an airstrip varied, but was usually between two and ten. Normally, ten aircraft were assigned to each infantry and airborne division, with two going to the division artillery HQ and two to each of its four FA battalions. Armoured divisions, with only three FA battalions and an artillery HQ,

A low fly-past over Perham Down on March 12, 1943 by six L-4s of the 29th Infantry Division. (National Archives)

In addition to the L-4 Cub, the Stinson L-5 Sentinel also flew from numerous airstrips in the UK. This particular L-5 was operated by the 153rd Liaison Squadron of the Ninth Air Force before moving to France after the invasion. (L. E. Shrum)

were assigned eight aircraft. Many airstrips housed only the two aircraft of a battalion, but sometimes two or more battalions, and occasionally even the air component of an entire division shared the same strip. However, only a fairly large field could accommodate ten parked aircraft and the 55-60 air section personnel of an entire division.

The term 'airstrip' invariably conjures up an image of a narrow, runway-like strip of land, but in fact it applied to fields or meadows of all shapes and sizes. Almost any stretch of open, reasonably level ground could be used and meadows, public parks, moorland, racecourses, sports fields and even roads, were all used as 'strips'. Good approaches were desirable and minimum strip lengths of 300 yards for L-4s and 400 yards for L-5s were specified, but both types frequently flew from shorter strips, reverting to pilot-only operation when necessary to reduce take-off weight.

Living quarters were usually located on strips, with a battalion's air section personnel — usually consisting of two pilots, two observers, a mechanic, an assistant mechanic or 'helper', and a driver — normally occupying a large, square 8-man tent. This came complete with a heater stove and was sometimes augmented by one or more of the large wooden crates in which liaison aircraft were shipped from the USA. Suitably modified, these crates made comfortable crew rooms or workshops, and some were even adapted as sleeping quarters.

Airstrips varied appreciably in size and quality, but few subsequently matched what is believed to have been the first in England. This was at Perham Down, near Tidworth in Wiltshire, where in October 1942 a large polo field was taken over to serve as a base for ten Cubs of the II Corps Air OP Training School. Later, following the departure of II Corps to North Africa, Perham Down was used by the 29th Infantry Division and other units.

Another good quality strip was that 'discovered' by David Wintle at Abbots Leigh, near Bristol. Owned then as now by Clifton College, this sports field (and the magnificent buildings of the college itself) served Lieutenant General Omar Bradley's First US Army HQ from October 1943 to June 1944. Following D-Day and the departure of the First Army to Normandy, the strip was taken over by HQ Ninth Army, which remained at Clifton College until September 1944 when it, too, departed for 'the far shore' as France was known to the Americans. But many strips were more akin to that at Cwrt-y-Gollen, near Abergavenny, where a small, narrow field was bordered by trees, hedges and, along one side, overhead wires on poles.

In most cases the fields and other open spaces adapted as strips were willingly surrendered by their owners, but when resistance was encountered it was sometimes necessary to compulsorily requisition land. At times this resulted in legal difficulties, but with the eventual arrival of four American armies (each with about 300 liaison aircraft), numerous 'separate' FA battalions and five liaison squadrons of the Ninth Air Force, such steps were necessary.

With the coming of D-Day in June 1944, a mass exodus started. The First Army was the first to go, the Third Army departed a month or so later, and these were followed by the Ninth and Fifteenth Armies. By October most of the strips were abandoned; a few remained in use for a while, as some units continued to arrive in the UK for pre-combat training, but by May 1945 US Army airstrips in Britain were virtually things of the past.

Unlike the sites of most former WW2 airfields, where the remains of hard runways and buildings often still exist, nothing generally remains to indicate the one-time presence of an airstrip. They had no permanent structures and, unlike well documented airfields, no official list of airstrips appears to have survived the war; nor do unit records or US Army/USAAF Station Lists give their precise location. Accordingly, finding their whereabouts has proved extremely difficult and has been achieved mainly through contact with ex-US Army Aviation personnel, airfield research enthusiasts and local residents. Equally difficult has been the task of linking known strips to specific units and in many cases this has not been possible. What follows, then, is not a complete list of US airstrips in the UK, but is almost certainly the most comprehensive yet assembled.

Accommodation on many airstrips consisted only of a standard eight-man tent, seen here with an L-4 Cub, a Dodge weapons carrier and a Jeep of the 26th Infantry Division. (P. Cunha)

A 1944 view of the airstrip at Cwrt-y-Gollen, near Abergavenny, used by L-4s of the 177th Field Artillery Group. Two tents, four L-4s and a Jeep can be seen at one end of this small, obstructed field which has the A40 Abergavenny to Brecon road running along the far side with the River Usk beyond. (H. Davies)

ABERGAVENNY, Mon.
(1) Cwrt-y-Gollen. N side of the A40 Abergavenny-Crickhowell road. 177th FA Gp. Field extant and little changed since 1944.
(2) Dan-y-Parc. S side of the A4077, NW of Abergavenny. Believed used by the 177th FA Gp. Houses and industrial buildings now on part of the site, remainder overgrown.
(3) Two occasional strips at Ty-mawr: (a) the sports field alongside the River Usk, E of the approved school, and (b) the small field SW of the approved school. Both strips were used in connection with visits to the 279th Station Hospital at Ty-mawr.
(4) Monmouthshire Golf Course. S of Abergavenny. Gliding site of No 1062 Squadron, ATC, used by visiting L-4s.

ADDERBURY, Oxon.
58th and 87th Armd FA Bns.

ALBRIGHTON, Staffs.
196th FA Bn.

ALFRISTON, Sussex.
No details known.

ALMONDSBURY CAMP, Perth.
No details known.

ARUNDEL, Sussex.
951st FA Bn.

ASCOT RACECOURSE, Sunninghill Park, Berks. (AAF Stn 472)
HQs of Ninth AF and IX AFSC. Used by various liaison aircraft including L-5s of HQ Sqdn, Ninth AF.

BARNSTAPLE, Devon.
E of Barnstaple.
58th Armd FA Bn.

BARTON BENDISH, nr Marham, Norfolk.
No details known.

BARTON STACEY, Hants.
959th FA Bn and 406th FA Gp.

BEGGARS BUSH FIELD, Abbots Leigh, Bristol.
Between N side of Beggars Bush Lane (B3129) and S side of the A369 Bristol-Portishead road. Sports field (extant) owned by Clifton College. L-4s and L-5s of First US Army Arty HQ (October 1943-June 1944) and Ninth US Army Arty HQ (July-September 1944). Also visited by L-5s and UC-78s of USAAF Liaison Sqdns.

BIGGIN HILL, Kent.
Strip adjacent to Fairchilds House.

BIRKENHEAD, Cheshire.
Arrowe Park.
No details known.

ABBREVIATIONS

AAF	Army Air Forces	Bty	Battery
Abn	Airborne (Division)	Div	Division
AFSC	Air Force Service Command	FA	Field Artillery
AGF	Army Ground Forces	Gp	Group
Air OP	Air Observation Post	LS	Liaison Squadron
Armd	Armored (Division)	Lsn	Liaison
Arty	Artillery	SHAEF	Supreme Headquarters Allied Expeditionary Force
ATC	Air Training Corps (Air Cadets)		
ATG	Air Transport Group	Sqdn	Squadron
ATS	Air Transport Squadron	Stn	Station (USAAF)
Bde	Brigade	TAD	Tactical Air Depot
Bn	Battalion	USAAF	United States Army Air Force.

The Cwrt-y-Gollen strip as it appears today. In this list the name of each strip is followed, when known, by details of its location and the unit(s) stationed there. Unless otherwise stated, L-4s were the type of aircraft based on them. Airstrips usually took the name of the nearest village or town, but some were known by more than one name (when equidistant between two or more places) and some duplicate listing is possible. The county names are those in use in wartime and no account has been taken of post-war boundary revisions.

April 1944. Sergeant Tom Turner prepares to touch down in his L-4 at the strip east of Barnstaple used by aircraft of the 58th Armored FA Battalion. (T. K. Turner)

BISHOP COURT (possibly Bishops Court, N Ireland?).
941st FA Bn.

BISHOP FARM (no county given).
172nd FA Bn.

BODMIN, Cornwall.
110th FA Bn.

BOURNEMOUTH, Hants.
(1) Canford School Park.
No further details known.
(2) Turbary Common, Wallisdown, flanked on N and NE side by Turbary Park Avenue. Used by L-4s and RAF Austers. Extant, but area reduced by post-war industrial development.

BRADNINCH, Devon.
955th FA Bn.

BRAMFORD HALL, nr Ipswich, Suffolk.
No details known.

BREAMORE, nr Salisbury, Wilts. (AAF Stn 440)
(1) Butchers Field, near Breamore House (7 miles S of Salisbury, W of the A338 road to Fordingbridge). Arty HQ Third Army and other units.
(2) Field 3 miles N of Breamore House (W side of A338). L-5s of 'B' Flt, 153rd LS.
Both airstrips (sites extant) served HQ VII Corps, HQ Third US Army and other units stationed at Breamore House.

BRIDGEND, Glam.
12th FA Bn.

BRUTON, Somerset.
Grounds of Redlynch House, 1 mile SE of Bruton on the B3081.
3rd Armd Div Arty HQ.

BUDE, Cornwall.
190th FA Bn.
Strip extant, but badly overgrown; a garage used for aircraft and vehicle maintenance is still in existence.

BUSHY PARK (Camp Griffiss, SHAEF), Middx. (AAF Stn 586)
Public park, S of Teddington.
L-5s of the 112th LS. Park extant, but no camp buildings remain.

CARDIFF.
(1) The Heath, immediately N of the Heath Hospital. Adjacent to huts known as Camp Heath.
Probably either 2nd or 90th Inf Divs. Strip site and huts still exist.
(2) An Air Training Corps gliding site, known as The Glider Field, at Ty Glas Road, Llanishen. Probably 2nd or 90th Inf Divs. Area now partly built-up.

CHALFONT ST PETER, Bucks.
30th Inf Div.

CHARBOROUGH PARK, Dorset.
S side of the A31, 2 miles SW of Sturminster Marshall.
1st Inf Div and 58th Armd FA Bn.
Private deer park, extant and little changed since 1944.

CHELTENHAM, Glos.
Lillybrook Golf Course, used occasionally by liaison aircraft taking senior officers to meetings at the nearby Lillybrook Hotel.

CHEPSTOW RACECOURSE, Mon.
2 miles N of Chepstow on the A466.
344th FA Bn. Racecourse still in use, but nothing remains of wartime camp.

CHESHAM, Bucks.
30th Inf Div.

Below left: **A recent view of the 190th FA Battalion's former strip at Bude, Cornwall. The sheds now occupied by Sam Edward's garage in Ocean View Road were once used by the motor pool and served also as a maintenance hangar for the battalion's two L-4s** *(below right).* **(T. Sampson)**

CHITTERNE, Wilts.
978th FA Bn.
CHOSELEY FARM, Nr Hunstanton, Norfolk.
No details known.
CLACTON-ON-SEA, Essex.
987th FA Bn.
COBHAM, Surrey.
No details known.
CODFORD, Wilts.
119th and 228th FA Gps.
CONGLETON, Cheshire.
Field at Biddulph.
742nd FA Bn.
CROESYCEILLIOG, Mon.
New Inn, 2 miles S of Pontypool.
The main A4042 road now runs through the site.
DAMERHAM, Hants.
West Park House, near Damerham. On the B3078 3 miles W of Fordingbridge.
Strip also possibly known as Fordingbridge.
L-4 and L-5 aircraft of HQ VII Corps.
ENVILLE, Staffs.
Enville Cricket Ground, Staffs/Worcs border.
No further details.
FIVEMILETOWN, Co Tyrone, Northern Ireland.
Field at Blessington Farm.
8th Inf Div.

Probably the most famous of all the American airstrips in the UK was that at Bushy Park — Army Air Force Station 586. Initially Camp Griffiss was the headquarters of the Eighth Army Air Force but later it became the SHAEF HQ Widewing.

Its location at Teddington made it the closest airstrip to London — actually within the Greater London area. Although all the permanent buildings of the camp have long been demolished, the gasometer beside Sandy Road remains to help match up the comparison. (See also *After the Battle* No. 22 for a plan and post-war air view.)

'Johnny', the young visitor to the 58th Armored FA Battalion's airstrip at Ivybridge, Devon, is given a 'swing' by L-4 pilot Staff Sergeant Thomas K. Turner (right) and mechanic Tech/ Sergeant William A. Franklin. (T. K. Turner) The L-4 (43-29618) seen in the background was destroyed by enemy shell-fire shortly after arriving on Omaha Beach on D-Day. (T. K. Turner)

FORDINGBRIDGE, Hants.
L-4 and L-5 aircraft of VII Corps. Although listed separately, this strip was almost certainly that at West Park (known as Damerham).
FROME, Somerset.
54th FA Bn.
GODSHILL, Wilts.
On the B3078, 2 miles E of Fordingbridge.
GRAMPOUND, Cornwall.
190th FA Gp.
GREAT TORRINGTON, Devon.
200th FA Bn.
HACKNESS, Yorks.
No details known.
HALTWHISTLE, Derbs.
250th FA Bn.
HAMMERWOOD, (?).
No details known.
HARTFIELD, Sussex.
No details known.
HEDGERLEY, Bucks.
30th Inf Div.
HIRWAUN, Brecon.
S side of the A465, 3 miles NW of Aberdare.
322nd FA Bn (83rd Inf Div)
HORSHAM, Sussex.
113th and 197th FA Bns (30th Inf Div).
IVYBRIDGE, Devon.
Davids Cross, between the B3213 (formerly the A38) and the current A38 road.
58th Armd FA Bn.
Factory and other buildings now on site.

Sheep now graze peacefully on a field which served as a wartime airstrip at Sennybridge, near Brecon. Situated in beautiful hill country with the sparkling River Usk running alongside, this little-changed field was used extensively by units engaged in 'shoots' on the nearby artillery ranges.

Charborough House, 1944. Before D-Day the 58th Armored FA Battalion was stationed at Charborough Park, near Poole in Dorset, where part of the deer park served as an airstrip. Personnel of the battalion's Air Section are here seen in the yard adjacent to the house. (T. K. Turner) *Right:* **Charborough House, 1990 — the same yard, the same wall and the same door, photographed by the author, but long gone are the once familiar sounds of Piper Cubs, Jeeps and American accents.**

In July 1990, as a nostalgic forty-sixth anniversary tailpiece to this story, Ken Wakefield flew his own restored Piper Cub back to the very airstrip where it first saw service in 1944. The Clifton College sports field at Beggars Bush Lane, Bristol, was used by liaison aircraft of both the First and Ninth US Army HQs, and Ken's L-4H (44-79766) was assigned to the Army HQ Air Section with the Ninth. Here he approaches the very high trees bordering the A369 Bristol to Portishead road, with the landing field beyond. The trees running diagonally from left to right follow the course of Beggars Bush Lane, the B3129 leading to Flax Bourton. Pictures taken from the rear seat by Doug Dyson.

KIDDERMINSTER, Worcs.
No details known.
KIDSDALE, (?).
No details known.
KINGTON, Hereford.
½ mile from Kington on the Hergest road. Original site on Broadmere field (a boggy area, drained and levelled) later abandoned in favour of the large level field opposite Kington College.
693rd FA Bn.
KNUTSFORD, Cheshire.
Liaison aircraft attached to HQ Third US Army normally used Cranage airfield, but possibly there was also a strip at Peover Hall (Army HQ).
LARKHILL, Wilts.
4 miles NW of Amesbury.
LISKEARD, Cornwall.
No details known.
LLANDOVERY, Carmarthenshire.
Sports field (now a golf course) on W side of Llandovery, S of the A40 between the railway and the River Tywi.
LUDLOW, Salop.
18th FA Gp and several FA Bns.
MACCLESFIELD, Cheshire.
S of Macclesfield, reported to be 'close to a pub/restaurant with a spotting tower nearby' (presumably a Royal Observer Corps Post).
202nd FA Gp.
MERELY PARK, (?).
142nd FA Gp.
MERTHYR TYDFIL, Glam.
Local ATC Squadron gliding site.
NEWTON ABBOT, Devon.
Newton Abbot Racecourse.
OKEHAMPTON, Devon.
Landing ground at Folly Gate, 1½ miles NW of Okehampton on the A386.
227th FA Bn (29th Inf Div).
Field extant.
OTTERBURN, Northumberland.
No details known.
PAIGNTON, Devon.
Seafront at Paignton. Designated Strip Y670.
65th Armd FA Bn and 153rd LS.
PIDDLEHINTON, Dorset.
62nd Armd FA Div.
PIPPINGFORD PARK, (?).
No details known.
POOLE, Dorset.
266th and 551st FA Bns.
PORTHCAWL, Glam.
Hangarage at nearby Stormy Down airfield used for maintenance purposes.
PORT TALBOT, Glam.
Grounds of Margam Castle.
ROCKBOURNE, Hants.
179th FA Gp.
ROLLESTONE CAMP, Wilts.
No details known.
ROSS-ON-WYE, Herefordshire.
Field at Bromsash.
SALISBURY, Wilts.
No details of precise location.
552nd FA Bn.
SANDBANKS, Dorset.
153rd FA Bn.
SENNYBRIDGE, Brecon.
S side of the A-40, beside the River Usk, ½ mile W of Sennybridge.
Numerous units (including the 250th FA Bn) when using nearby firing ranges.
SHADINGFIELD, nr Beccles, Suffolk.
No details known.
SIPHA, nr Scarborough, Yorks.
No details.
SISSINGHURST, Kent.
No details known.
SLAPTON SANDS, Devon.
On or near beach used for amphibious assault training. Designated Strip Y821.
Various units of First US Army.
SOMERSHAM, nr St Ives, Hunts.
No details known.
SOUTHWICK PARK, nr Portsmouth, Hants.
Grounds of Southwick House (Forward HQ, SHAEF), 3 miles N of Portsmouth.
L-5s of 112th LS.
STONEHENGE, Wilts.
No details known.
STOURPORT-ON-SEVERN, Worcs.
L-4 and L-5 aircraft of VIII Corps and other units.
SWANWICK, nr Ripley, Derby.
Hayes House.
250th FA Bn.
TAUNTON (Norton Manor), Somerset.
Large field opposite entrance to Norton Manor (HQ V Corps).
L-4s and L-5s of V Corps Arty HQ and L-5s of the 153rd LS.
TAVISTOCK, Devon.
29th Inf Div Arty HQ.
TENBY, Pembs.
2nd Inf Div. (Note: It is probable that aircraft of this division operated mainly from nearby Manorbier airfield).
THE RHOS, nr Haverfordwest, Pembs.
Picton House Farm, 5 miles E of Haverfordwest.
Probably 28th Inf Div (not confirmed).
THORVERTON, Devon.
953rd FA Bn.
THURSLEY, Surrey.
195th FA Bn.

TIDWORTH, Wilts.
Polo field at Perham Down.
L-4s and L-5s. Used at different times by II Corps Air OP School, HQ 29th Inf Div, HQ 7th Armd Div, HQ 2nd Armd Div, HQ 9th Armd Div, HQ 12th Armd Div and HQ 8th Armd Div.
TILSHEAD, Wilts.
188th FA Gp.
TIVERTON, Devon.
4th and 79th Inf Divs.
TORQUAY, Devon.
58th Armd FA Bn.
TROWBRIDGE, Wilts.
L-4s and an L-5 of the 32nd FA Bde.
WAKEFIELD, Yorks.
997th FA Bn.
WALKHAMPTON, Devon.
No details known.
WALLBURTON, Sussex.
183rd FA Bn (188th FA Gp).
WALSALL, Staffs.
Strip on site of pre-war Walsall civil airport.
18th FA Bn (18th FA Gp).
WANTAGE, Berks.
322nd FA Bn (83rd Inf Div).
WARMINSTER, Wilts.
(1) Knook Camp, N side of the A36 at Knook, near Warminster.
L-5s of the 153rd LS.
(2) Sutton Veny Camp, S side of the B3095 Sutton Veny-Longbridge Deverill road.
3rd Armd Div.
WATCHET (Dunniford), Som.
St Audries, 1 mile E of Watchet, off the A39.
187th FA Gp and numerous other units using the Watchet firing ranges.
WELFORD, Berks.
101st Abn Div.
WESTERGATE, Sussex.
957th FA Bn.

The sequence of three shots shows the approach to land on a typical US Army airstrip. Ken is a former British Airways Route Check Captain with 15,000 hours under his belt, so piloting the Cub is a welcome relaxation after many years spent on TriStars and heavy transport aircraft. Here he turns onto a short final approach, landing towards the west.

WESTHANGER RACECOURSE, Kent.
No details known.
WHITEGATE, Cheshire.
Field between the old railway station yard (now part of the Whitegate Way country trail) and Cassia Lodge (occupied by US troops in 1944).
WIMBORNE MINSTER, Dorset.
979th, 980th and 981st FA Bns.
WINCHESTER, Hants.
9th Inf Div.
WINDSOR (SMITHS LAWN), Berks.
S of Windsor, in the SE corner of Windsor Great Park.
Used by various USAAF and US Army aircraft including L-4s, L-5s, UC-78s, UC-61s and C-47s. Resident units: HQ 31 ATG and 316th ATS.
WREXHAM, Cheshire.
322nd FA Bn (83rd Inf Div)
WYLIE, Wilts.
No details known.

Passing over the trees bordering the A369, with the pavilion below to the right and the landing area dead ahead. *Back cover:* **Safely down, Ken prepares to take off again to give David Wintle a nostalgic local flight. Although unknown to each other at the time, both were keen observers of the flying activity at Beggars Bush Lane during the war.**

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